पर्यावरण अध्ययन

कक्षा 4 के लिये पाठ्यपुस्तक

भाग 1

हमारा देश भारत

पाठ्यपुस्तक-समिति के सदस्य

डा. रवीन्द्र दवे (विभागाध्यक्ष)
प्रो. विमल घोष (भूतपूर्व विभागाध्यक्ष)
प्रो. त्रिभुवन शंकर मेहता
डा. अल्बर्ट जॉन पैरेली
श्रीमती आदर्श खन्ना
श्री भालचंद्र सदाशिव पारख
श्री चंद्र प्रकाश राय भटनागर
श्री शांति स्वरूप रस्तोगी
श्री चंद्र भूषण

मानचित्रकार
श्री कृष्ण कुमार

चित्रकार
श्री बी. एम. आलंद

मुख पृष्ठ चित्र : सी० पी० टंडन

कृतज्ञता-ज्ञापन

इस पुस्तक में प्रयुक्त फ़ोटोग्राफ़ प्रेस इन्फर्मेशन ब्यूरो और एयर इंडिया, नई दिल्ली के सौजन्य से प्राप्त हुए हैं तथा सभी मानचित्र भारत के महासर्वेक्षक की अनुज्ञानुसार भारत सर्वेक्षण विभागीय मानचित्रों पर आधारित हैं और उनका प्रतिलिप्यधिकार भारत सरकार का है। राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद् इस सहायता के लिए आभार प्रकट करती है।

पर्यावरण अध्ययन

कक्षा 4 के लिये पाठ्यपुस्तक

भाग 1

हमारा देश भारत

राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्

प्राक्कथन

पर्यावरण अध्ययन पर कक्षा 4 की यह पुस्तक पूर्व निर्मित दो पुस्तकों पर आधारित है, जिनके नाम हैं, *'हमारा देश भारत'* और *'पर्यावरण से विज्ञान सीखना'*। ये पुस्तकें राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद् द्वारा तैयार किए गए कक्षा III से V तक के पर्यावरण अध्ययन (भाग I और II) की पाठ्यचर्या पर आधारित हैं।

दस-वर्षीय पाठ्यचर्या पर समीक्षा समिति 1977 की रिपोर्ट में दी गई संस्तुतियों के आधार पर प्राथमिक कक्षाओं में 'विज्ञान' और 'सामाजिक अध्ययन' को 'पर्यावरण अध्ययन' के रूप में पढ़ाया जाना है। पर्यावरण अध्ययन की पाठ्यचर्या में प्राकृतिक और सामाजिक दोनों ही परिवेशों को शामिल करना है। पढ़ाने का उद्देश्य बच्चों के मस्तिष्क में तथ्यों और जानकारी मात्र ठूंस भर देना ही नहीं है, वरन् उनकी ज्ञानेन्द्रियों का समुचित विकास कर उनको अपने पर्यावरण का अध्ययन करने एवं अपने अनुभव को अधिक समृद्ध बनाने हेतु, अधिक सक्षम बनाना भी है।

इस पुस्तक के भाग I में यह प्रयास किया गया है कि बच्चे अपने भौगोलिक वातावरण और सांस्कृतिक परम्परा के बारे में जानने को प्रेरित हों। भाग I में किया गया यह प्रयास सफल माना जायेगा यदि हमारे विद्यार्थी यह महसूस करने लगेंगे कि भारत एक देश है और क्षेत्रीय विभिन्नताओं के बावजूद सब भारतीय एक हैं। हम आशा करते हैं कि अध्यापक, बच्चों में राष्ट्रीय दृष्टिकोण विकसित करने में बच्चों की सहायता करेंगे।

इस पुस्तक का भाग II बच्चों के प्राकृतिक वातावरण से सम्बन्धित है। इस भाग की विषय-वस्तु इस दर्शन को प्रतिबिम्बित करती है कि प्राथमिक स्तर पर विज्ञान की शिक्षा का प्रमुख उद्देश्य वैज्ञानिक विधि द्वारा पर्यावरण और तत्सम्बन्धी समस्याओं को समझना होना चाहिए। पुस्तक में दिए गए पाठों के नाम पर्यावरण के उन तत्वों को दर्शाते हैं जिन पर ज्ञानार्जन आधारित है।

आशा की जाती है कि प्राकृतिक पर्यावरण के अध्ययन पर आग्रह में यह परिवर्तन, बच्चों के जीवन की वास्तविक परिस्थितियों से वैज्ञानिक ज्ञान का संबंध स्थापित करने में सहायक होगा। इस भाग में कार्यकलापों द्वारा बच्चों के सक्रिय सहयोग पर अधिक बल है, इन्हें इस प्रकार से चुना गया है कि उनके लिए विशेष उपकरणों की जरूरत नहीं पड़ती, अपितु वातावरण ही स्वयं में सीखने का साधन बन जाता है। विज्ञान के सरल प्रक्रमों जैसे प्रेक्षण, मापन, वर्गीकरण तथा विचारों के आदान-प्रदान को इन कार्यकलापों द्वारा भली-भाँति विकसित किया जा सकता है।

क्योंकि केन्द्रीय विद्यालयों में विद्यार्थी इस कक्षा में विज्ञान अंग्रेजी माध्यम से पढ़ते हैं, और सामाजिक अध्ययन हिन्दी माध्यम से, इसलिए भाग I और भाग II दोनों भाषाओं में अलग-अलग प्रकाशित किए गए हैं।

सामाजिक विज्ञान एवं मानविकी शिक्षा विभाग के अपने सहयोगियों के प्रति मैं आभारी हूं जिन्होंने

प्रो० भा० स० पारख के मार्गदर्शन एवं पर्यवेक्षण में सामूहिक रूप से कार्य करते हुए इस पुस्तक के भाग I के निर्माण में सहायता की है।

परिषद् उन सज्जनों की भी आभारी है जिन्होंने इस पुस्तक के भाग II के लेखन एवं पुनरीक्षण में सहयोग दिया है। लेखन एवं पुनरीक्षण मंडली में डा० ब्रजेश दत्त आत्रेय, श्री गोप बन्धु गुरु, श्री हरचरण लाल शर्मा और कुमारी शुक्ला मजूमदार रहे हैं। पुस्तक को वर्तमान रूप देने तथा प्रकाशित करने में सहायता प्रदान करने के लिए परिषद् डा० ब्रजेश दत्त आत्रेय की आभारी है।

पाठ्यचर्या का विकास एवं निरंतर गतिशील प्रक्रिया है, अतः प्रस्तुत पाठ्यचर्या और पाठ्यपुस्तक में सुधार संबंधी सुझावों का सहर्ष स्वागत किया जायेगा। हम ऐसे सब सुझावों का इस पुस्तक के संशोधित संस्करण में उपयोग हेतु विचार करेंगे।

शिव कुमार मित्र

निदेशक

राष्ट्रीय शैक्षिक अनुसंधान

और प्रशिक्षण परिषद्

नई दिल्ली

अप्रैल 1979

पाठ-सूची

भारत के महासर्वेक्षक की अनुज्ञानुसार भारतीय सर्वेक्षण विभाग के मानचित्र पर आधारित।

समुद्र में भारत का जल प्रदेश उपयुक्त आधार रेखा से मापे गये बारह समुद्री मील की दूरी तक है।

इस मानचित्र में मेघालय की सीमा उत्तर-पूर्वी क्षेत्र (पुनर्गठन) अधिनियम, 1971 के निर्वचनानुसार दर्शित है, परन्तु अभी सत्यापित होनी है।

सीख लो

सामने के पृष्ठ पर दिए गए मानचित्र को ध्यान से देखो। यह हमारे देश—भारत का मानचित्र है। इसमें भारत और उसके पड़ोसी देशों के कुछ भाग दिखाए गए हैं। क्या तुम मानचित्र में इस प्रकार की (------------) रेखा देखते हो ? दो देशों के बीच की सीमा-रेखा मानचित्र पर इसी प्रकार दिखाई जाती है। इसे अंतर्राष्ट्रीय सीमा कहते हैं। अब तुम किसी भी मानचित्र पर अंतर्राष्ट्रीय सीमा ढूँढ़ सकते हो।

भारत की सीमा का कुछ भाग मानचित्र में इस प्रकार (————) की रेखा से दिखाया गया है। इसे तट-रेखा कहते हैं। तट-रेखा के साथ का नीला भाग समुद्र है। पानी के बहुत बड़े भंडार को समुद्र या सागर कहते हैं। समुद्र का पानी खारा होता है। बहुत बड़े और गहरे समुद्रों को महासागर कहते हैं। समुद्रों और महासागरों को रंगीन मानचित्रों में सदा नीले रंग से दिखाते हैं। तुम भारत की तट-रेखा के साथ लगने वाले समुद्र और महासागर के नाम मानचित्र में पढ़ सकते हो।

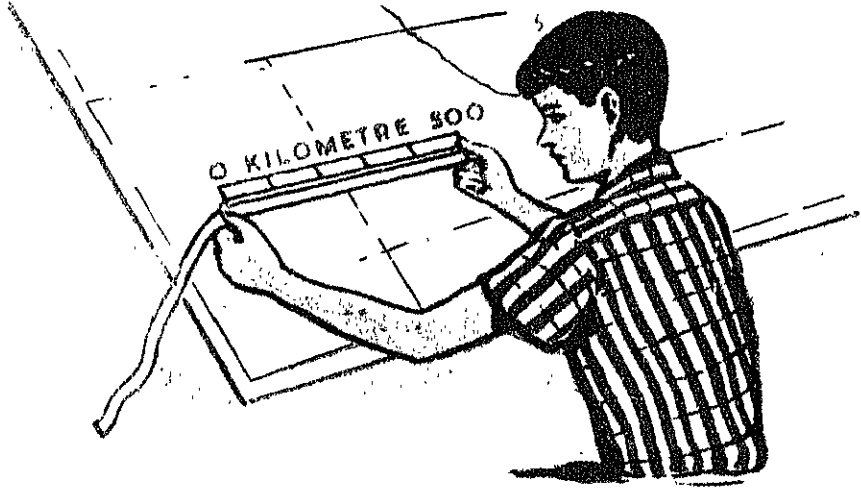
भारत में बहुत-से राज्य हैं। भारत के विभिन्न राज्यों के बीच की सीमाएँ मानचित्र में इस प्रकार की रेखा (----------) से दिखाई गई हैं।

तुम पृथ्वी पर दिशाएँ मालूम करना जानते हो। क्या तुमने कभी सोचा है कि मानचित्र में भी उत्तर, दक्षिण, पूर्व और पश्चिम दिशाएँ होती हैं ? आओ मानचित्र में दिशाएँ मालूम करना सीखें।

भारत का एक बड़ा मानचित्र लो। इसे दीवार पर लटकाओ और इसकी ओर मुँह करके खड़े हो जाओ। तुम्हारे सिर की ओर मानचित्र का उत्तर और पैरों की ओर दक्षिण होगा। तुम्हारे दाएँ हाथ की ओर पूर्व और बाएँ की ओर पश्चिम होगा। क्या तुम अब मानचित्र में दिशाएँ बता सकते हो ? ज़रा बताओ कि भारत के मानचित्र में दिए गए समुद्र और पड़ोसी देश किस-किस दिशा में हैं।

भारत एक विशाल देश है। इसकी लंबाई-चौड़ाई कागज़ पर नहीं दिखाई जा सकती। किसी भी स्थान अथवा देश का मानचित्र उसके ठीक-ठीक आकार से बहुत छोटा होता है। यही कारण है कि मानचित्र में बड़ी दूरी को छोटा करके दिखाया जाता है। सभी अच्छे मानचित्रों पर दूरी नापने के लिए एक छोटी-सी रेखा बनी होती है।

इसे पैमाना कहते हैं। पैमाने की सहायता से तुम मानचित्र पर दिए गए किन्हीं दो स्थानों के बीच की सीधी दूरी मालूम कर सकते हो। आओ, दिल्ली और मद्रास के बीच की सीधी दूरी मालूम करें। इससे तुम मानचित्र पर लिखे पैमाने का प्रयोग करना सीखोगे।

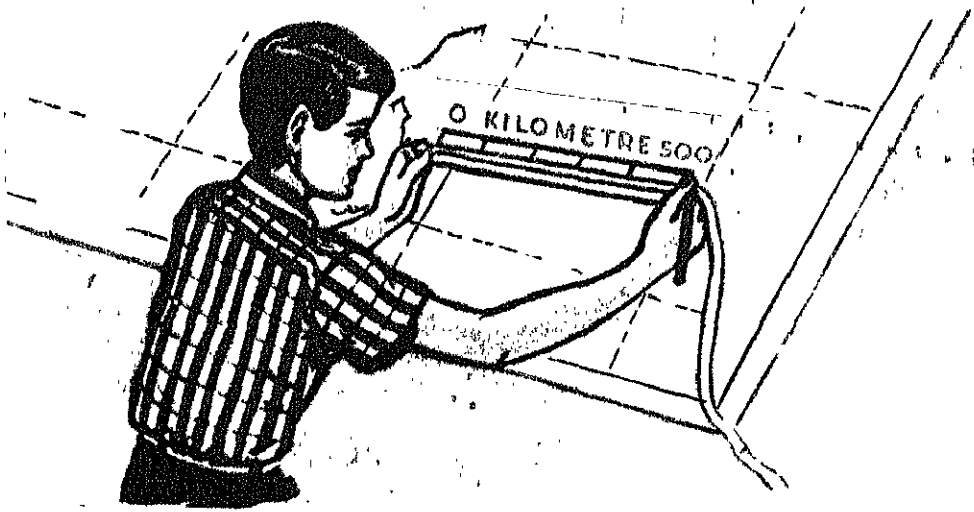
एक धागा या कागज की एक पट्टी लो। इसका एक सिरा दिल्ली के स्थान (विन्दु) पर रखो। धागे को खींचकर मद्रास के स्थान (विन्दु) तक लाओ। धागे पर मद्रास के सामने एक निशान लगाओ। धागे के दोनों सिरों को कसकर पकड़ो। इस धागे को दिल्ली

चित्र 1

और मद्रास के स्थान (विन्दु) के बीच की लंबाई के बराबर काट लो।

अब धागे का एक सिरा पैमाने के शून्य विन्दु पर रखो और धागे को पैमाने की रेखा के साथ लगाकर पैमाने के दूसरे सिरे तक की दूरी नापो (चित्र 1)। यदि धागे की लंबाई पैमाने की एक नाप से अधिक है तो धागे पर उस जगह निशान लगाओ जहाँ पैमाने का अंतिम सिरा है। धागे की शेष लंबाई को पहले की भाँति पैमाने पर नापो (चित्र 2)। इस प्रकार नापी गई सब दूरी को जोड़ने से तुम्हें दिल्ली और मद्रास के बीच की सीधी दूरी मालूम हो जाएगी। मानचित्र पर दिए गए किन्हीं दो स्थानों की दूरी तुम इसी प्रकार मालूम कर सकते हो। इस पैमाने की सहायता से तुम भारत की लंबाई और चौड़ाई भी मालूम कर सकते हो।

तुम देखते हो कि भारत की तट-रेखा बहुत लंबी है। जहाँ भूमि और समुद्र मिलते हैं, उसे समुद्र-तट कहते हैं। तट कहीं-कहीं पर कटा-फटा और टेढ़ा-मेढ़ा होता है। ऐसे

ही कटे-फटे तट के कुछ स्थानों के पास जहाँ समुद्र गहरा होता है, जहाज़ आकर रुकते हैं और वहाँ से ही विदेशों को जाते हैं। ऐसे स्थान को बंदरगाह कहते हैं। गहरे समुद्र और कटे-फटे तट पर अच्छे बंदरगाह बन सकते हैं। बंदरगाह पर सामान उतारा और लादा जाता है और यात्री भी चढ़ते-उतरते हैं। भारत के समुद्र-तट पर बहुत-से बंदरगाह हैं। तुम मानचित्र में इनके नाम पढ़ सकते हो।

कहीं-कहीं समुद्र अपने तट को काटकर भूमि के अंदर घुस गया है और तीन ओर धरती से घिरा है। समुद्र के ऐसे भाग को खाड़ी कहते हैं (चित्र 5)। खाड़ी चौड़ी

चित्र 2

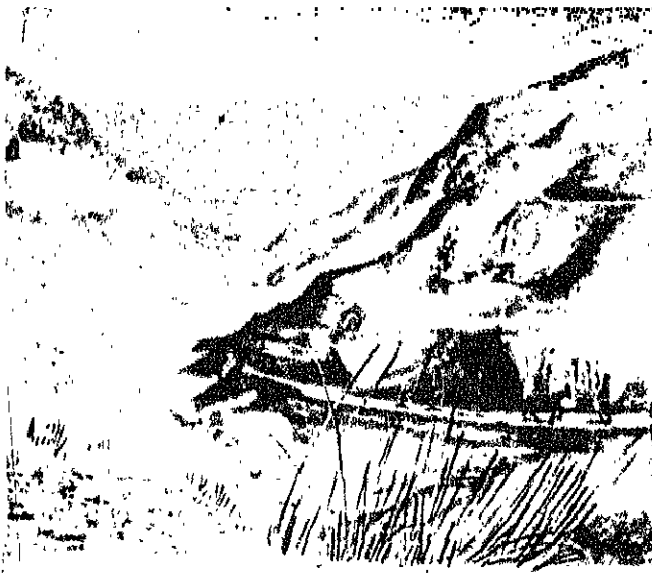
भी हो सकती है और तंग भी। मानचित्र में बंगाल की खाड़ी, खंभात की खाड़ी और कच्छ की खाड़ी देखो।

कहीं-कहीं भूमि का कोई भाग दूर तक समुद्र में चला गया है और एक ओर को छोड़कर शेष सब तरफ़ समुद्र से घिरा है (चित्र 5)। भूमि के ऐसे भाग को प्रायद्वीप कहते हैं। इसी प्रकार कहीं-कहीं भूमि का एक पतला नुकीला भाग भी तीन ओर समुद्र से घिरा होता है। इसे अंतरीप कहते हैं (चित्र 5)। भूमि के कुछ ऐसे छोटे-बड़े टुकड़े हैं जिनके चारों ओर समुद्र है। ऐसे भूखंडों को द्वीप कहते हैं (चित्र 5)। क्या अब तुम मानचित्र में कन्या कुमारी अंतरीप, सौराष्ट्र प्रायद्वीप, अंडमान और निकोबार द्वीप समूह ढूँढ़ सकते हो?

पृष्ठ 7 पर दिए चित्र 6 को देखो। इससे पता चलता है कि समुद्र के पानी का तल भूमि

के अन्य सभी भागों से नीचा है। इसीलिए भूमि के भिन्न-भिन्न भागों की ऊँचाई हम सदा समुद्रतल को आधार अथवा शून्य मानकर ही नापते हैं। किसी स्थान की ऊँचाई का अर्थ है—'उस स्थान की समुद्रतल से ऊँचाई'। क्या तुम जानते हो कि भारत की राजधानी दिल्ली की समुद्रतल से ऊँचाई लगभग 239 मीटर है?

चित्र 6 में तुम देखते हो कि भूमि के कुछ भाग समुद्रतल से बहुत अधिक ऊँचे नहीं हैं। भूमि के ऐसे समतल भाग को मैदान कहते हैं। मैदान से कुछ ऊँची उठी और लगभग समतल भूमि को पठार कहते हैं। पठार मैदान से लगभग सीधा ऊपर की ओर उठा होता है। चित्र में यह भी देखो कि पहाड़ी भाग आस-पास की भूमि से बहुत ऊँचे उठे हुए हैं। इनकी ऊँचाई सब जगह एक-सी नहीं है। समुद्रतल से बहुत ऊँचे उठे भागों को पर्वत या पहाड़ कहते हैं। जिन पहाड़ों की ऊँचाई बहुत अधिक नहीं है उन्हें पहाड़ी कहते हैं। पर्वत के सबसे ऊँचे भाग को पर्वत-शिखर या पर्वत की चोटी कहते हैं।

तुम चित्र 5 में पर्वतों की एक पंक्ति देख रहे हो। पर्वतों की ऐसी पंक्ति को पर्वतमाला अथवा पर्वतश्रेणी कहते हैं। एक पर्वत में बहुत-सी पर्वतमालाएँ हो सकती हैं। एक पर्वतमाला में भिन्न-भिन्न ऊँचाई वाले पर्वत अथवा पहाड़ होते हैं। एक पहाड़ की ढलान

चित्र 3

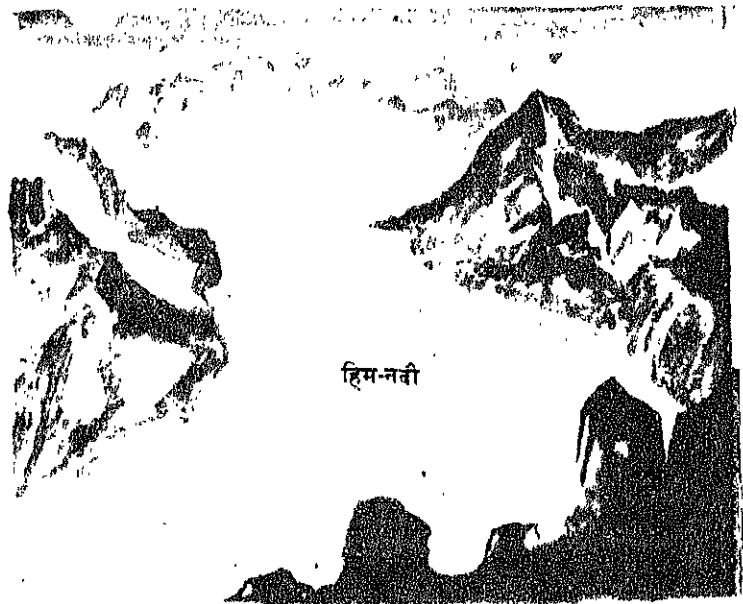
और दूसरे पहाड़ की ढलान के बीच में गहराई वाले भाग को घाटी कहते हैं। घाटी में अक्सर नदी बहती है।

ऊँचे पहाड़ों को पार करना बहुत कठिन होता है। पहाड़ों में कहीं-कहीं तंग रास्ते पाए जाते हैं। इन तंग रास्तों को दर्रा कहते हैं (चित्र 3)। ऐसे दर्रों से ही लोग अक्सर

पहाड़ों को पार करते हैं। चित्र 3 में तुम कुछ लोगों को दर्रा पार करते हुए देख सकते हो।

किसी स्थान पर कितनी गर्मी या सर्दी होती है ? वर्षा वहाँ कब और कितनी होती है ? वर्षों तक किसी स्थान की इन दशाओं की जानकारी से वहाँ की जलवायु का पता चलता है। जलवायु 'गर्म' अथवा 'ठंडी', 'आर्द्र' अथवा 'शुष्क' हो सकती है। किसी स्थान की जलवायु की जानकारी बड़ी रुचिकर होती है। इससे हमें उस स्थान तथा वहाँ के लोगों के बारे में बहुत-सी बातों का पता चलता है।

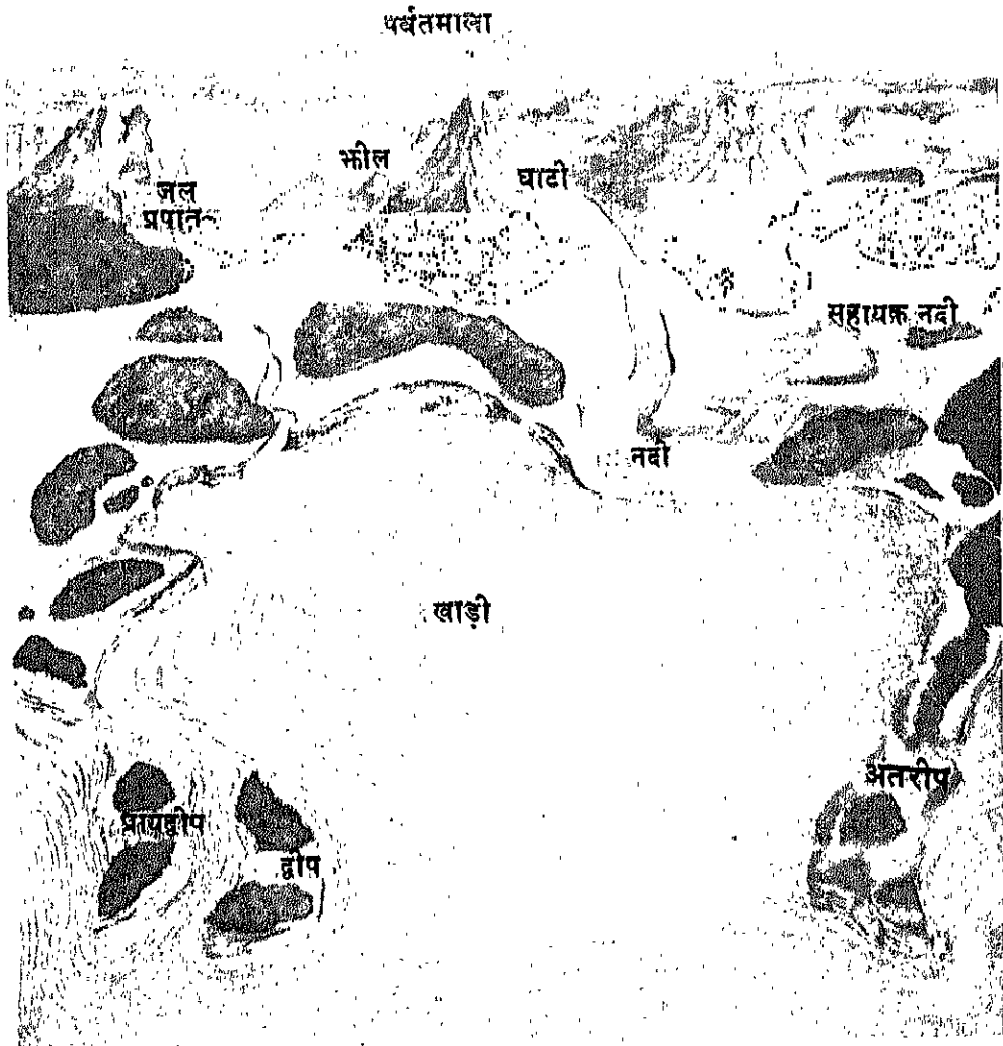
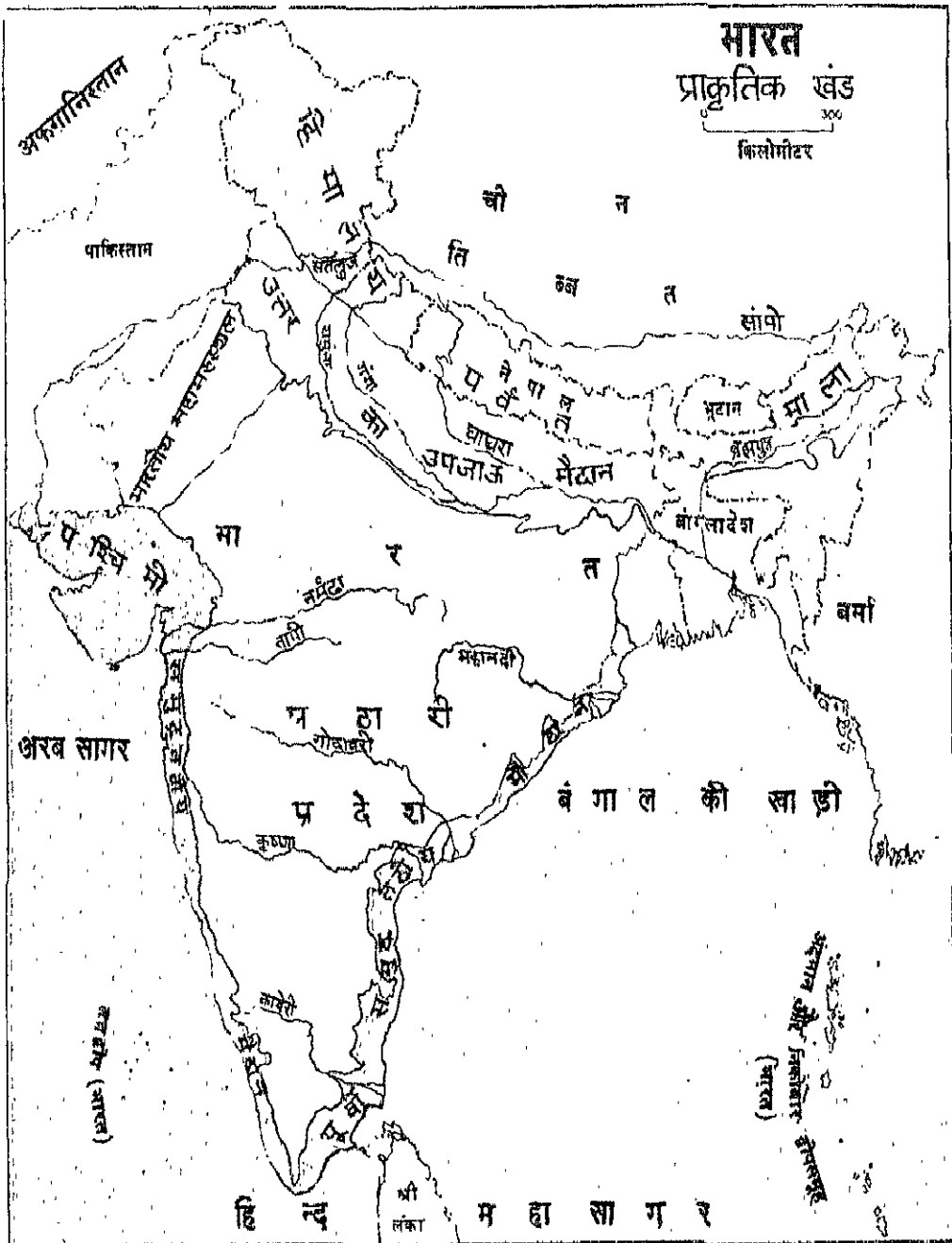
जैसे-जैसे तुम इस पुस्तक को पढ़ोगे, तुम्हें पता चलेगा कि मैदानों की अपेक्षा पहाड़ी भागों की जलवायु ठंडी होती है। ऊँचे पर्वतों पर अधिकांशतः वर्षभर बर्फ़ पड़ती है। पहाड़ों की कुछ बहुत ऊँची चोटियाँ तो सदा बर्फ़ से ढकी रहती हैं। लगातार बर्फ़ गिरने से पहाड़ों पर बर्फ़ के मीलों लंबे-चौड़े ढेर लग जाते हैं। अधिक भार के कारण बर्फ़ कहीं-कहीं बहुत धीरे-धीरे पहाड़ से नीचे घाटी की ओर खिसकने लगती है। इसे हिम-नदी कहते हैं। हिम-नदी अक्सर कई किलोमीटर लंबी होती है। बर्फ़ की यह नदी इतने धीरे चलती है कि देखने में स्थिर मालूम पड़ती है (चित्र 4)।

चित्र 4

जब हिम-नदियाँ निचले भागों में पहुँचती हैं तो बर्फ़ पिघलकर पानी बन जाती है। उससे नदियाँ बनती हैं। हिमालय पर्वतमाला में कई हिम-नदियाँ हैं। इनसे हमारे देश की अनेक नदियाँ निकलती है।

नदी पहाड़ों और चट्टानों के ऊपर से कूदती-फाँदती आगे बढ़ती है। जब यह ढलवाँ पर्वतों से गिरती है तो जलप्रपात बनाती है (चित्र 5)।

मार्ग में ऐसी ही कई और नदियाँ इस नदी में आ मिलती हैं। अब यह नदी एक बड़ी नदी बन जाती है। जो छोटी नदियाँ बड़ी नदी में जाकर मिलती हैं, इसकी सहायक नदियाँ कहलाती हैं। जिस स्थान पर दो नदियाँ मिलती हैं, उसे संगम कहते हैं।

तुम जानते हो भूमि के कुछ भाग ऊँचे और कुछ भाग नीचे होते हैं। कहीं-कहीं भूमि के निचले भाग में बहुत-सा पानी जमा हो जाने से झील बन जाती है (चित्र 5)। कुछ झीलों का पानी खारा होता है और कुछ का मीठा। लगभग सभी नदियाँ पहाड़ों से बहती हुई मैदान में आकर किसी अन्य नदी या झील में मिलती हैं अथवा समुद्र में जा गिरती हैं।

इस पुस्तक में तुम भारत के राज्यों और यहाँ के लोगों के बारे में बहुत-सी रोचक और काम की बातें पढ़ोगे। इस पाठ से तुम्हें पुस्तक के शेष पाठों को अच्छी तरह समझने में बड़ी सहायता मिलेगी। आवश्यकता पड़ने पर तुम इस पाठ को बार-बार पढ़ सकते हो।

चित्र 5

पर्वत चोटी
पहाड़ी
खड्ड
पठार
मैदान
समुद्र

चित्र 6

भारत के महासर्वेक्षक की अनुज्ञानुसार भारतीय सर्वेक्षण विभाग के मानचित्र पर आधारित।

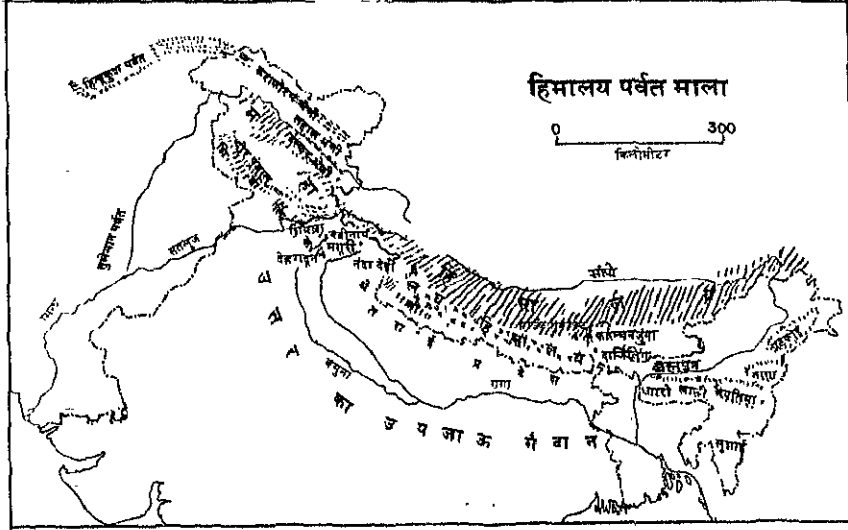
समुद्र में भारत का जल प्रदेश उपयुक्त आधार रेखा से मापे गए बारह समुद्री मील की दूरी तक है।

भारत-भूमि

हमारा देश भारत एक विशाल देश है। लंबाई-चौड़ाई में यह संसार का सातवाँ बड़ा देश है। साथ में दिए गए मानचित्र में भारत का आकार देखो। तुम देखोगे कि यह बीच में अधिक चौड़ा है। दक्षिण में इसकी चौड़ाई कम होती जाती है और कुमारी अंतरीप के समीप धुर दक्षिणी सिरा तो बिल्कुल नुकीला है। कुमारी अंतरीप को कन्याकुमारी भी कहते हैं।

इस मानचित्र में तुम यह भी देखोगे कि पाकिस्तान, अफ़गानिस्तान, चीन, नेपाल, बर्मा और श्रीलंका आदि हमारे पड़ोसी देश हैं। दक्षिण में हमारा देश समुद्र से घिरा हुआ है। दक्षिण-पश्चिम में अरब सागर, दक्षिण में हिन्द महासागर और दक्षिण-पूर्व में बंगाल की खाड़ी है।

इस विशाल देश में हमें विभिन्न प्रकार के सुंदर दृश्य देखने को मिलते हैं। देश के उत्तरी भाग में हिमालय पर्वतमाला है और इस पर्वतमाला के दक्षिण में एक लंबा-चौड़ा समतल उपजाऊ मैदान है। इस उपजाऊ मैदान के दक्षिण-पश्चिम में एक रेतीला मैदान है जिसे भारत का मरुस्थल कहते हैं। मैदानी भाग के दक्षिण में एक बड़ा पठार क्षेत्र है। इस पठार में न तो हिमालय जैसे ऊँचे पर्वत हैं और न उत्तरी उपजाऊ मैदान की तरह समतल भूमि। यहाँ की भूमि ऊँची-नीची है। पठार के पश्चिम और पूर्व में समुद्र के साथ-साथ सँकरे समुद्रतटीय मैदान हैं।

तुम अगले पाठों में पढ़ोगे कि देश के विभिन्न भागों की भूमि कैसी है, वहाँ गर्मी, सर्दी और वर्षा कैसी होती है, वहाँ पर कौन-सी चीजें पैदा होती हैं और वहाँ के लोगों का जीवन कैसा है।

भारत के महासर्वेक्षक की अनुज्ञानुसार भारतीय सर्वेक्षण विभाग के मानचित्र पर आधारित।

समुद्र में भारत का जल प्रदेश उपयुक्त आधार रेखा से मापे गये बारह समुद्री मील की दूरी तक है।

1. हिमालय पर्वतमाला

पृष्ठ 8 पर दिए भारत के मानचित्र को देखो। देश की उत्तरी सीमा पर हिमालय पर्वतमाला है। प्रकृति ने इसे सुंदरता दी है। कहीं बर्फ़ है तो कहीं बड़े-बड़े पेड़ हैं। कहीं जलप्रपात हैं तो कहीं झीलें। इस सुंदरता को देखने सैकड़ों लोग दुनिया के विभिन्न भागों से आते हैं। आओ, हम इसकी जानकारी प्राप्त करने के लिए हिमालय से ही उसकी कहानी सुनें :

"बच्चो ! मेरा जन्म कब और कैसे हुआ, यह एक लंबी कहानी है। तुम इसको अगली कक्षाओं में पढ़ोगे। मैं भारत की उत्तरी सीमा के साथ पश्चिम में कश्मीर और पूर्व में असम राज्यों के बीच फैला हूँ। मेरी लंबाई लगभग 2500 किलोमीटर है। मुझमें कई पर्वतश्रेणियाँ हैं। ये एक-दूसरे के पीछे पश्चिम से पूर्व को फैली हैं। मेरी चौड़ाई सब जगह समान नहीं है। चौड़ाई कहीं 150 किलोमीटर है तो कहीं 400 किलोमीटर। पूर्व में मेरी चौड़ाई पश्चिम की अपेक्षा कम है। मेरी ऊँचाई भी सब जगह एक-जैसी नहीं है।

"मेरी सबसे दक्षिण की ओर फैली पर्वतश्रेणी को शिवालिक की पहाड़ियाँ कहते हैं। ये मिट्टी, बालू और कंकड़ों से बनी हैं और अधिक ऊँची नहीं हैं। इनकी ढलानों पर घने जगल मिलते हैं, जिनकी लकड़ी तुम्हारे बहुत काम आती है।

"शिवालिक की पहाड़ियों के दक्षिण में वर्षा अधिक होती है। इस क्षेत्र को तराई कहते हैं। इस भाग में कहीं-कहीं पर दलदल हैं। यहाँ ऊँची घास और घने जंगल पाए जाते हैं।

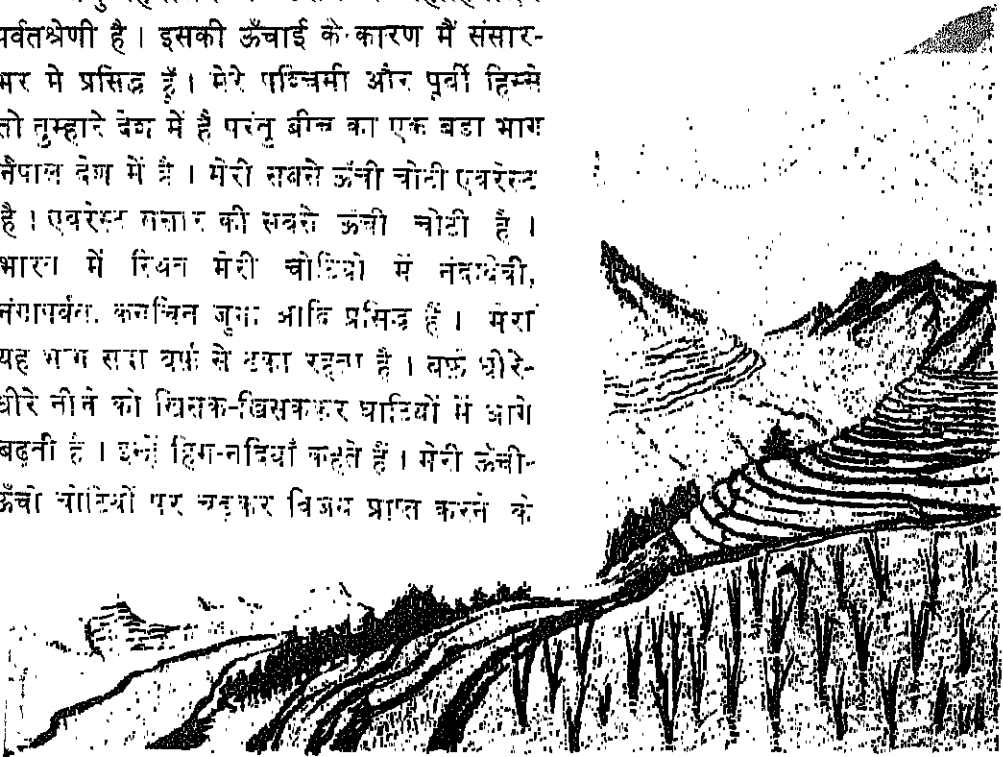
"तराई का अधिक भाग उत्तर प्रदेश में है। अब यहाँ कहीं-कहीं पर जंगल काटकर बड़े-बड़े खेत बनाए जा रहे हैं। इन खेतों की मुख्य उपज गन्ना है।

"तराई के क्षेत्र में कई प्रकार के जंगली जानवर जैसे हाथी, शेर, चीते, गैंडे, हिरन आदि मिलते हैं। इन जंगली जानवरों को कार्बेट पार्क के सुरक्षित वन में देखा जा सकता है। कार्बेट पार्क उत्तर प्रदेश में नैनीताल के दक्षिण में है।

"शिवालिक की पहाड़ियों के उत्तर में मेरी श्रेणियों को लघु हिमालय कहते हैं। इन पर चीड़ और देवदार के पेड़ बहुत पाए जाते हैं। शिवालिक की पहाड़ियों और लघु हिमालय की श्रेणियों के बीच में कई छोटी-बड़ी घाटियाँ हैं। देहरादून का नाम तुमने सुना होगा। यह नगर ऐसी ही एक घाटी में है। लघु हिमालय के निचले भागों में शिमला, अल्मोड़ा, मसूरी, नैनीताल और दार्जिलिंग जैसे सुंदर पहाडी स्थान हैं। इन्हीं स्थानों पर बहुत-से लोग गर्मी के दिनों में सैर करने आते हैं।

"इन पहाड़ों की ढलानों और घाटियों में कुछ लोग रहते हैं। इनके मकानों की छतें ढालदार होती हैं। क्या तुम बता सकते हो कि यहाँ पर ऐसी छतें क्यों बनाई जाती हैं? पहाड़ों की ढाल पर खेती करना कठिन है, फिर भी कुछ लोग बड़ी मेहनत करके धान की खेती करते हैं और फलों के बाग लगाते हैं। खेत सीढ़ीदार होते हैं। यहाँ कुछ लोग भेड़-बकरियाँ पालते हैं। पशुओं की रक्षा के लिए कुत्ते भी पाले जाते हैं।

"लघु हिमालय के उत्तर में महाहिमालय पर्वतश्रेणी है। इसकी ऊँचाई के कारण मैं संसार-भर मे प्रसिद्ध हूँ। मेरे पश्चिमी और पूर्वी हिस्से तो तुम्हारे देश में हैं परंतु बीच का एक बड़ा भाग नेपाल देश में है। मेरी सबसे ऊँची चोटी एवरेस्ट है। एवरेस्ट संसार की सबसे ऊँची चोटी है। भारत में स्थित मेरी चोटियों में नंदादेवी, नंगापर्वत, कंचनजंगा आदि प्रसिद्ध हैं। मेरा यह भाग सारा वर्ष बर्फ से ढका रहता है। बर्फ धीरे-धीरे नीचे को खिसक-खिसककर घाटियों में आगे बढ़ती है। इन्हें हिम-नदियाँ कहते हैं। मेरी ऊँची-ऊँची चोटियों पर चढ़कर विजय प्राप्त करने के

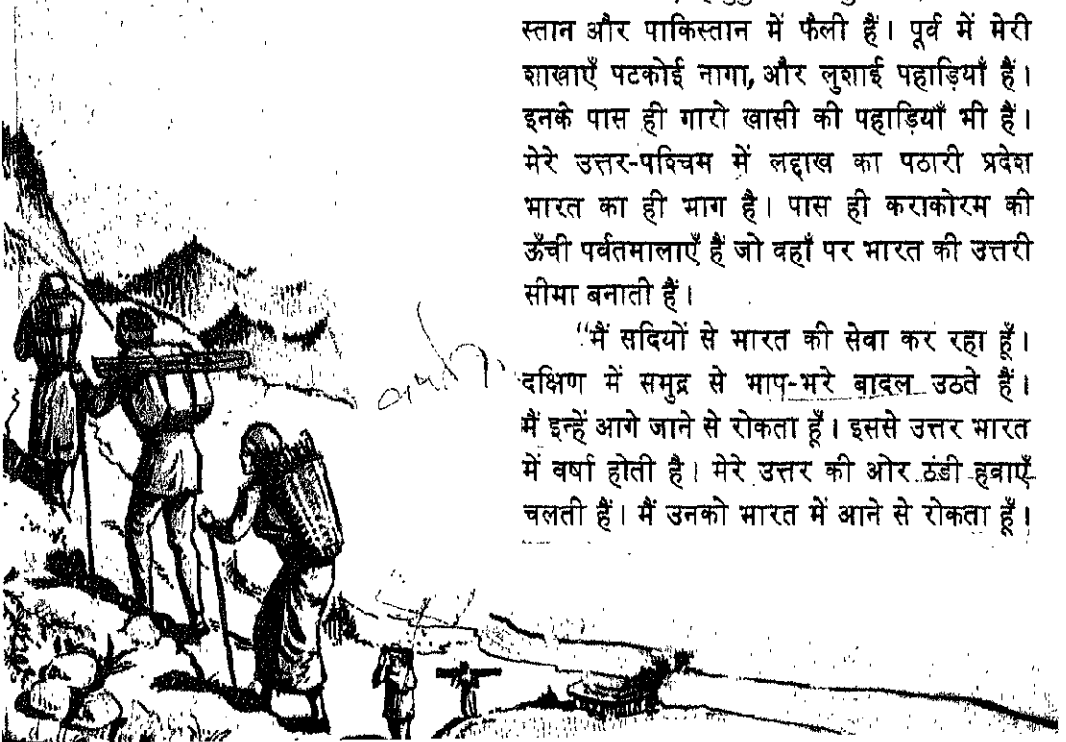
सीढ़ीदार खेत

एवरेस्ट शिखर

लिए दूर-दूर से लोग आते रहे हैं। भारतवासी तेनसिंह शेरपा और न्यूज़ीलैंड के हिलेरी 1953 में पहली बार एवरेस्ट की चोटी पर पहुँचे थे।

"कहीं-कहीं पर मेरे इन ऊँचे पहाड़ों में घाटियाँ और उनके निचले भागों में तंग सँकरे रास्ते हैं। इन तंग सँकरे रास्तों को दर्रा कहते हैं। इन्हीं रास्तों से लोग दूसरी पर्वतमालाओं में पहुँचते हैं। ऐसे ही एक दर्रे से होकर तुम कश्मीर की घाटी में पहुँच सकते हो। क्या तुम बता सकते हो इस दर्रे का क्या नाम है? इन तंग पहाड़ी रास्तों की चढ़ाई बहुत कठिन होती है। कभी-कभी ऐसे बहुत तंग रास्तों पर से गुज़रना पड़ता है जिनके एक ओर ऊँचे पहाड़ और दूसरी ओर हज़ारों मीटर गहरे खड्ड होते हैं। इसलिए इन पर बहुत ही सँभलकर चलना पड़ता है। फिर भी घाटियों में रहनेवाले लोग इन मार्गों से ही अनाज, ऊन, नमक आदि चीज़ें दूर-दूर से अपनी और जानवरों की पीठ पर लादकर आते-जाते हैं।

"मानचित्र में ध्यान से देखो। पश्चिम में मेरी दो शाखाएँ हिन्दुकुश और सुलेमान, अफ़गानिस्तान और पाकिस्तान में फैली हैं। पूर्व में मेरी शाखाएँ पटकोई नागा, और लुशाई पहाड़ियाँ हैं। इनके पास ही गारो खासी की पहाड़ियाँ भी हैं। मेरे उत्तर-पश्चिम में लद्दाख का पठारी प्रदेश भारत का ही भाग है। पास ही कराकोरम की ऊँची पर्वतमालाएँ हैं जो वहाँ पर भारत की उत्तरी सीमा बनाती हैं।

"मैं सदियों से भारत की सेवा कर रहा हूँ। दक्षिण में समुद्र से भाप-भरे बादल उठते हैं। मैं इन्हें आगे जाने से रोकता हूँ। इससे उत्तर भारत में वर्षा होती है। मेरे उत्तर की ओर ठंडी हवाएँ चलती हैं। मैं उनको भारत में आने से रोकता हूँ।

पर्वतारोही

मेरी पर्वतमालाओं में बद्रीनाथ और केदारनाथ जैसे अनेक तीर्थ स्थान हैं। इन स्थानों में ऋषि-मुनि तपस्या करने आते रहे हैं।

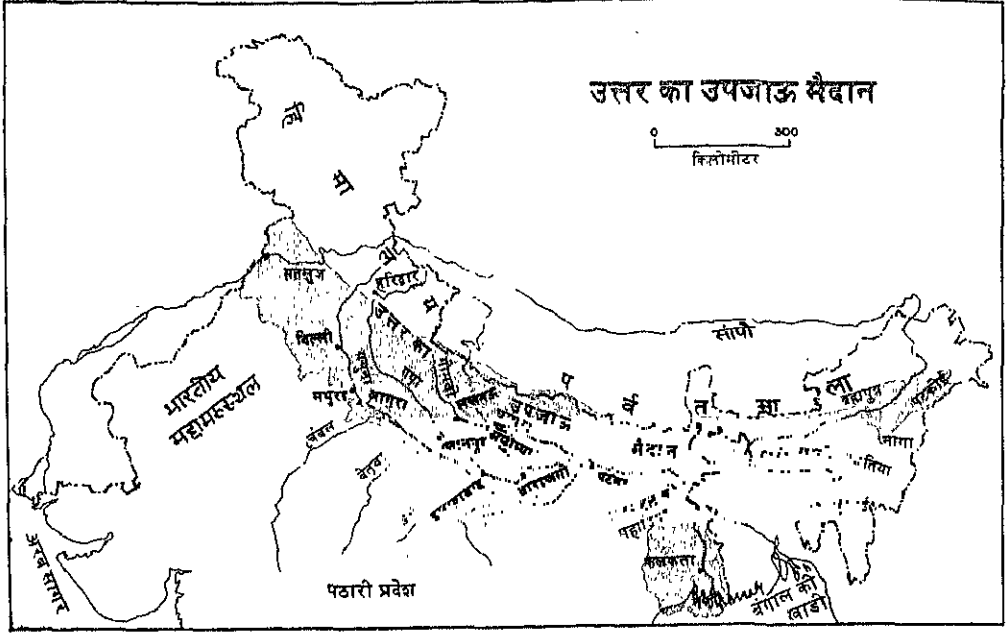
"मैं भारत की उत्तरी सीमा पर अडिग खड़ा हूँ। पुराने समय में मुझे पार करना बहुत कठिन था। आज भी मुझको जमीन के रास्ते से पार करना आसान नहीं है। हाँ, अब हवाई जहाज ने इसको आसान कर दिया है।

"गंगा, यमुना, सतलुज, ब्रह्मपुत्र आदि नदियों के उद्गम-स्थान मेरी ही गोद में हैं। इन नदियों में पूरे वर्षभर पानी रहता है। ऊँचाई से गिरकर कहीं-कहीं ये जलप्रपात बनाती हैं और कहीं नीची तंग घाटियों में तेज़ी से बहती हैं। मेरे पत्थर तेज़ बहाव से घिसते हैं और टूटकर पानी के साथ बह जाते हैं। ये पत्थर आपस में टकराकर चूर-चूर हो जाते हैं और मिट्टी बन जाते हैं। यह मिट्टी नदियों के पानी के साथ बहकर मैदानी भाग में फैल जाती है। उत्तर का उपजाऊ मैदान ऐसी ही मिट्टी से बना है।"

अब बताओ

1. मानचित्र में देखकर बताओ कि हिमालय की शाखाएँ भारत के अतिरिक्त और किन-किन देशों में फैली हुई हैं?
2. हिमालय पर्वत से हमें क्या लाभ है?
3. हिमालय से निकलनेवाली नदियों में पूरे वर्ष पानी क्यों रहता है?
4. गर्मी के दिनों में लोग पहाड़ी स्थानों पर क्यों जाते हैं?
5. यदि भारत के उत्तर में हिमालय पर्वत न होता तो भारत पर इसका क्या प्रभाव पड़ता?

कुछ करने को

1. अपनी पुस्तक में पृष्ठ 116 पर देखकर माउंट एवरेस्ट, धौलगिरि, कनचिनजुंगा, नंदादेवी और के^{2} की ऊँचाई लिखो।
2. मानचित्र को देखकर हिमालय से निकलनेवाली मुख्य नदियों के नाम लिखो।

भारत के महासर्वेक्षक की अनुज्ञानुसार भारतीय सर्वेक्षण विभाग के मानचित्र पर आधारित।

समुद्र में भारत का जल प्रदेश उपयुक्त आधार रेखा से मापे गये बारह समुद्री मील की दूरी तक है।

2. उत्तर का उपजाऊ मैदान

हमारे देश के उत्तर में हिमालय पर्वतमाला है। इस पर्वतमाला के दक्षिण में एक बहुत लंबा-चौड़ा समतल उपजाऊ मैदान है। इसे उत्तर का उपजाऊ मैदान कहते हैं। पृष्ठ 9 के सामने दिए भारत के मानचित्र में देखो यह मैदान किस रंग से दिखाया गया है।

उत्तर के उपजाऊ मैदान में बहुत-सी नदियाँ बहती हैं। ऊपर दिए मानचित्र में इन नदियों के नाम देखो। ये नदियाँ सदियों से अपने साथ मिट्टी बहाकर लाती रही हैं और आज भी ला रही हैं। ऐसी ही मिट्टी के जमाव से यह मैदान बना है और इसी कारण यह बहुत उपजाऊ है। वर्षा के दिनों में कभी-कभी इन नदियों में बाढ़ आ जाती है और पानी दूर-दूर तक फैल जाता है। इस प्रकार बाढ़ के समय नदियों द्वारा लाई हुई मिट्टी आसपास की भूमि पर फैल जाती है।

पुराने समय में देश के इस भाग में ही अशोक, चंद्रगुप्त विक्रमादित्य, अकबर जैसे

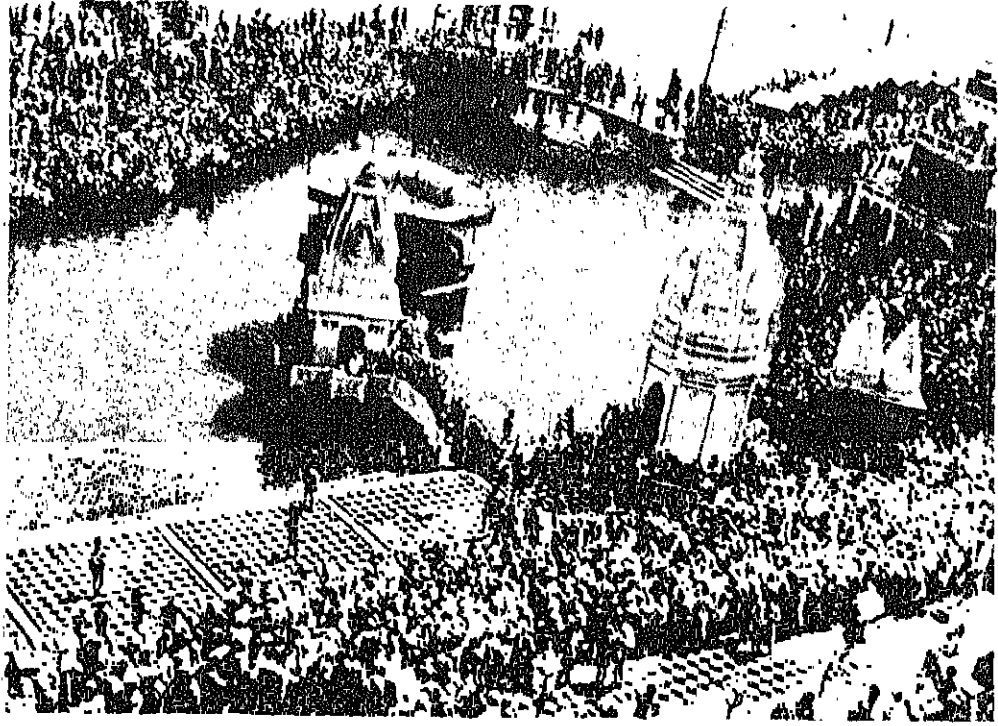
महान सम्राट हुए। रामायण और महाभारत की कहानियों का भी यही क्षेत्र है। यहीं पर सबसे पहले महात्मा बुद्ध ने अपने उपदेशों का प्रचार किया। इन्हीं कारणों से इस मैदान में हमारे बहुत-से प्राचीन नगर और तीर्थस्थान हैं।

लगभग सारा मैदान समतल है। मैदान इतना समतल है कि देखने से पता नहीं चलता कि इसका ढाल किस ओर है। तुम जानते हो कि पानी सदा ढाल की ओर बहता है। इसलिए नदियों के बहाव से ही मैदान के ढाल का पता चलता है। क्या तुम बता सकते हो कि इस मैदान का ढाल किस ओर है ?

मानचित्र में ध्यान से देखो, मैदान के पश्चिमी भाग में सतलुज और व्यास नदियाँ दक्षिण-पश्चिम की ओर बहती हैं। गंगा और उसकी सहायक नदियाँ दक्षिण-पूर्व की ओर बहती हैं। पूर्वी भाग में ब्रह्मपुत्र नदी दक्षिण-पश्चिम की ओर बहती है। नदियों के आधार पर यह मैदान तीन भागों में बँट जाता है।

पहला भाग सतलुज नदी का क्षेत्र है। यह क्षेत्र मैदान का पश्चिमी भाग है और सतलुज-व्यास नदियों की मिट्टी के जमाव से बना है। इस भाग में पंजाब और हरियाणा राज्य हैं। यहाँ की भूमि खेती के लिए बहुत अच्छी है। वर्षा अधिक नहीं होती है। इसलिए इस भाग के रहनेवाले सिंचाई करके मुख्य रूप से गेहूँ की खेती करते हैं।

दूसरा भाग गंगा और उसकी सहायक नदियों का क्षेत्र है। यह मैदान का बहुत बड़ा भाग है। दिल्ली, उत्तर प्रदेश, बिहार और बंगाल राज्य इस क्षेत्र में हैं। वर्षा कहीं अधिक होती है और कहीं कम। इस भाग में गेहूँ, [illegible] [illegible]ा और पटसन की खेती की [illegible]

[illegible]ा भाग ब्रह्मपुत्र का क्षेत्र [illegible] का यह छोटा-सा भाग [illegible]य में है। इसके तीन ओर [illegible] हैं। मानचित्र में देखकर [illegible]यों के नाम लिखो। इस [illegible]र्षा बहुत होती है। चाय [illegible]ल यहाँ की मुख्य उपज

गंगा की पहाड़ी यात्रा

गंगा हरिद्वार में

उत्तर के उपजाऊ मैदान की प्रमुख नदी गंगा है। यह नदी इस मैदान के एक बड़े भाग में बहती है। आओ, इस मैदान को जानने के लिए गंगा से ही उसकी कहानी सुनें। गंगा अपनी कहानी सुनाती है, सुनो :

"बच्चो! मैं नहीं जानती कि मेरा जन्म कब हुआ, परंतु मुझे इतना मालूम है कि मेरी यात्रा हिमालय पर्वत में गंगोत्री हिमनदी से आरंभ होती है। इस स्थान को गोमुख कहते हैं। यहाँ मेरा आकार नाले के समान छोटा है। यहाँ की पहाड़ी यात्रा में मुझे बड़ा आनंद आता है। मैं बड़े-बड़े पहाड़ों के बीच कूदती-फाँदती आगे बढ़ती हूँ। पहाड़ों से टकराती हूँ और जलप्रपात बनाती हूँ। जिन पहाड़ों से मैं टकराती हूँ वे धीरे-धीरे घिसने लगते हैं। कुछ टूट भी जाते हैं। टूटे हुए पत्थर मेरे वेग के साथ बहने लगते हैं। ये ही पत्थर धीरे-धीरे बालू तथा रेत बन जाते हैं। मार्ग में स्थान-स्थान पर बहुत-से पहाड़ी नदी-नाले मुझमें आ मिलते हैं। इनमें भागीरथी, मंदाकिनी और अलकनंदा प्रमुख हैं। हरिद्वार पहुँचते-पहुँचते मेरा आकार काफ़ी चौड़ा हो जाता है। यहाँ मैं पहली बार मैदान देखती हूँ। मैदान की समतल भूमि के कारण मेरी चाल धीमी होने लगती है।

"मैं धीमी चाल से आगे बढ़ती हुई कानपुर पहुँचती हूँ। यह एक बड़ा औद्योगिक और व्यापारिक नगर है। कानपुर से आगे मैं इलाहाबाद पहुँचती हूँ। इसका पुराना नाम प्रयाग है। यह एक पवित्र तीर्थस्थान है। यहीं पर मेरी सहायक नदी यमुना मुझसे मिलती है। यमुना दक्षिण के पठार से आनेवाली नदियों का पानी अपने साथ ले आती है। पृष्ठ 14 के मानचित्र में यमुना की सहायक नदियों के नाम देखो। यमुना नदी के किनारे पर भारत की राजधानी दिल्ली स्थित है। इसी नदी के किनारे मथुरा और आगरा नगर बसे हैं। संसार-प्रसिद्ध ताजमहल आगरा में ही है।

"इलाहाबाद से आगे मैं और भी धीमी चाल से वाराणसी पहुँचती हूँ। मेरे और मेरी सहायक नदियों के दोनों ओर दूर-दूर तक गेहूँ, चावल आदि के हरे-भरे खेत दिखाई देते हैं। यहाँ वर्षा अधिक नहीं होती है। पानी की कमी सिंचाई द्वारा पूरी की जाती है।

"वाराणसी से आगे उत्तर की ओर से गोमती और घाघरा नदियाँ मुझमें मिलती हैं। पृष्ठ 14 पर मानचित्र में देखो, गोमती नदी के किनारे लखनऊ है। घाघरा नदी को सरयू भी कहते हैं। इसके किनारे पर राम की जन्म-भूमि अयोध्या है।

"इन नदियों का पानी लेकर मैं और आगे बढ़ती हूँ और बिहार राज्य में प्रवेश करती हूँ। पटना के समीप उत्तर से गंडक और दक्षिण से सोन नदियाँ मुझमें आ मिलती हैं। पूर्व की ओर आगे चलकर कोसी नदी भी मुझमें मिल जाती है।

"इस भाग में मेरा पानी गहरा है। वर्षा के दिनों में अक्सर बाढ़ आ जाती है और मेरा पानी दोनों ओर दूर तक फैल जाता है। गाँवों और खेतों को बाढ़ से बचाने के लिए लोगों ने मेरे किनारे बाँध बनाए हैं। फिर भी कभी-कभी बाढ़ आने पर मैं उन्हें तोड़कर गाँवों और खेतों में घुस जाती हूँ।

"बिहार राज्य की पूर्वी सीमा पर राजमहल की पहाड़ियाँ हैं। इन पहाड़ियों के समीप होती हुई मैं बंगाल राज्य में प्रवेश करती हूँ। यहाँ आते-आते मेरी चाल काफ़ी धीमी हो जाती है। समुद्र के समीप तो मेरी चाल रुक-सी जाती है। अब मैं रेत-मिट्टी के भार को सँभाल नहीं पाती। रेत-मिट्टी जमकर मेरे ही पानी में टापू बन जाते हैं। टापुओं का रूप तिकोना होता है। इनके कारण मेरा पानी कई धाराओं में बँट जाता है। इस प्रकार कई धाराओं में बँटकर मैं बंगाल की खाड़ी में मिलने के लिए आगे बढ़ती हूँ। इस क्षेत्र को डेल्टा कहते हैं। डेल्टा-क्षेत्र की मुख्य उपज चावल और पटसन है।

"डेल्टा-क्षेत्र में मेरी एक प्रसिद्ध शाखा हुगली नदी के किनारे कलकत्ता नगर बसा है। यह एक प्रसिद्ध बंदरगाह है। देश-विदेश से समुद्री जहाज़ यहाँ आकर रुकते हैं। यहाँ से ये जहाज पटसन, चाय आदि वस्तुएँ विदेशों को ले जाते हैं। डेल्टा-क्षेत्र के निचले भागों में कहीं-कहीं दलदल भी है। इस दलदली भाग में घने वन भी हैं जिन्हें सुंदरवन

कहते हैं। इससे आगे चलकर मैं बंगाल की खाड़ी में मिल जाती हूँ और मेरी कहानी समाप्त हो जाती है।"

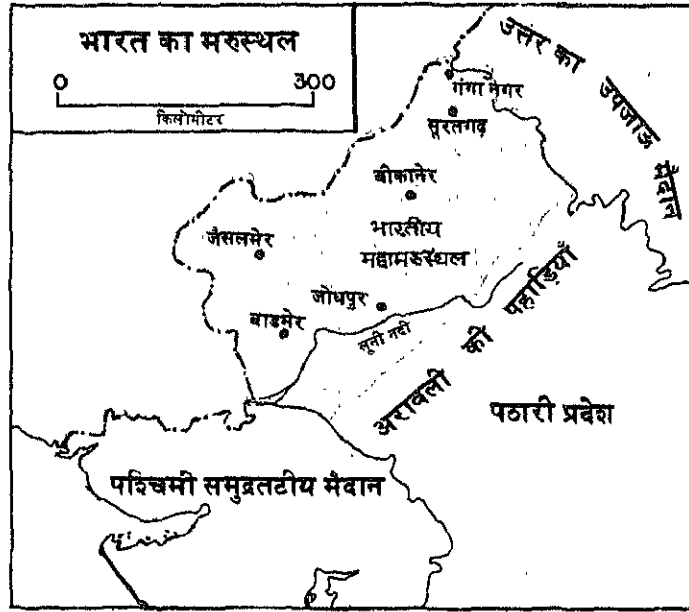
अब तुम जान गए कि सारा उत्तरी मैदान बहुत उपजाऊ है। सर्दी के कुछ महीनों को छोड़कर लगभग वर्षभर यहाँ गर्मी रहती है। वर्षा सब जगह समान नहीं होती। पूर्वी भाग की अपेक्षा पश्चिमी भाग में वर्षा कम होती है। कम वर्षावाले क्षेत्र में सिंचाई की सुविधा है। इसलिए यहाँ थोड़ी-सी मेहनत से अनेक प्रकार की फसलें उगाई जा सकती हैं।

उत्तर के उपजाऊ मैदान की लगभग सभी नदियाँ माल ढोने के लिए उपयोगी हैं। प्राचीनकाल में इन नदियों से लोग आते-जाते थे और माल भी ढोया जाता था। आज सड़कें और रेलें तो बन गई हैं, फिर भी नदियों को थोड़ा-बहुत माल ढोने के काम में लाया ही जाता है। आने-जाने की सुविधाएँ इस भाग में देश के दूसरे भागों से अधिक हैं। उपजाऊ भूमि, अच्छी जलवायु और आने-जाने की सुविधाओं के कारण यहाँ की आबादी घनी है।

अब बताओ

1. उत्तर के उपजाऊ मैदान के मुख्य तीन भाग कौन-कौन-से हैं ?
2. यह मैदान उपजाऊ क्यों है ? यहाँ कौन-सी मुख्य फसलें होती हैं ?
3. उत्तर के उपजाऊ मैदान में अधिक लोग क्यों रहते हैं ?
4. डेल्टा किसे कहते हैं ? यह कैसे बनता है ?
5. उत्तर के उपजाऊ मैदान में रहनेवाले लोगों को गंगा नदी से क्या लाभ हैं ?

कुछ करने को

1. भारत के मानचित्र में देखकर उत्तर के उपजाऊ मैदान की उन नदियों की सूची बनाओ :
   (क) जो हिमालय पर्वत से निकली हैं।
   (ख) जो दक्षिण के पठार से निकली हैं।
2. भारत के मानचित्र की सहायता से गंगा और यमुना नदी के किनारे बसे नगरों की सूची बनाओ।

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3. भारत का मरुस्थल

तुम पढ़ चुके हो कि अरावली की पहाड़ियाँ राजस्थान को दो भागों में बाँटती हैं। इन पहाड़ियों के पश्चिम में एक ऐसा क्षेत्र है जिसमें चारों ओर रेत ही रेत है। यहाँ दूर-दूर तक पानी नहीं मिलता और वर्षा बहुत ही कम होती है। गंगा जैसी एक भी नदी यहाँ नहीं है। इस क्षेत्र को भारत का मरुस्थल कहते हैं।

भारत के मानचित्र में देखो। इस मरुस्थल के उत्तर-पश्चिम में पाकिस्तान और उत्तर-पूर्व में उपजाऊ मैदान है।

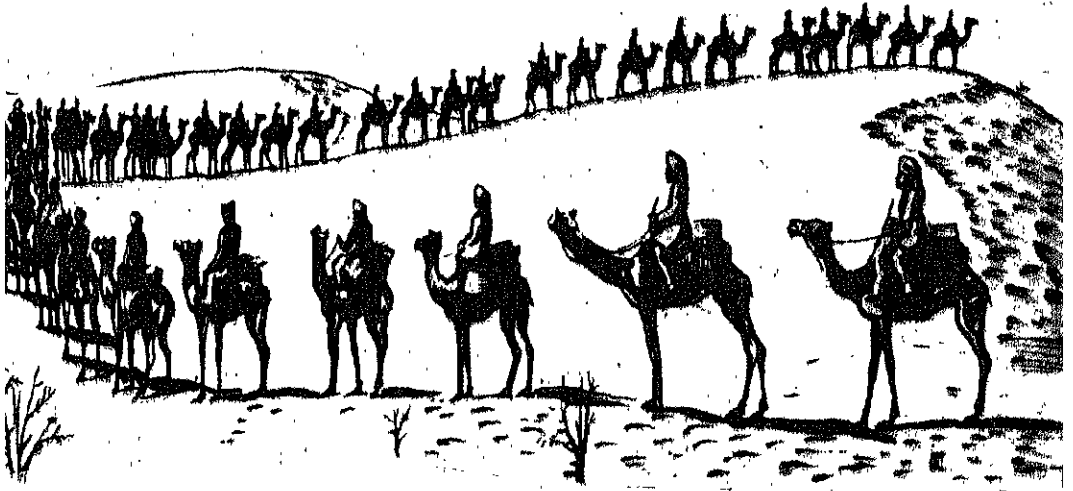
इस मरुस्थली भाग में गर्मी के मौसम में बहुत कड़ी धूप और तेज गर्मी होती है। दिन में सुबह नौ बजे के बाद तो घर से निकलना कठिन हो जाता है। अक्सर तेज आँधियाँ चलती हैं। आँधियों के साथ रेत उड़ती है और उस समय कुछ भी दिखाई नहीं देता। कड़ी धूप से रेत बहुत गर्म हो जाती है। दिन में बहुत गर्मी पड़ती है परंतु रातें ठंडी और सुहावनी होती हैं। जानते हो ऐसा क्यों होता है? रेत जल्दी गर्म और जल्दी ठंडी हो जाती है। सर्दी के मौसम में दिन सुहावने होते हैं परंतु रातें बहुत ठंडी होती हैं।

इस रेतीले और सूखे मरुस्थली भाग में दूर-दूर तक कोई पेड़ नहीं दिखाई देता। कहीं-

कहीं काँटेदार झाड़ियाँ अवश्य मिलती हैं। पानी की कमी के कारण इस क्षेत्र के अधिक भाग में खेती नहीं हो पाती। पीने का पानी भी दूर से लाना पड़ता है। कुएँ बनाना आसान नहीं है क्योंकि पानी बहुत गहराई पर मिलता है। इन्हीं कारणों से इस भाग में नगर और गाँव कम हैं और वे दूर-दूर बसे हैं।

मरुस्थल में रेत की अधिकता के कारण सड़कें बनाना कठिन है। इस भाग में रेलवे लाइन बिछाना भी महँगा पड़ता है। यदि परिश्रम करके सड़कें बना ली जाएँ अथवा रेलवे लाइनें बिछा ली जाएँ तो वे रेत से ढक जाती हैं। इसलिए इस भाग में रहनेवाले अपनी यात्रा और अपनी आवश्यकता की चीज़ों को ढोने के लिए अधिकतर ऊँट का प्रयोग करते हैं। ऊँट ही एक ऐसा पशु है जो कई दिन तक बिना पानी के रह सकता है। इसके गद्दीदार पैर रेत में नहीं धँसते। इसलिए इसे रेतीले भाग में चलने में कठिनाई नहीं होती। ऊँट को 'रेगिस्तान का जहाज़' कहते हैं।

मरुस्थल में कभी-कभी लोग इकट्ठे होकर यात्रा करते हैं। इस सामूहिक यात्रा को 'काफ़िला' या 'कारवाँ' कहते हैं।

ऊँटों का काफ़िला

मरुस्थल में पानी कहीं-कहीं ही मिलता है। ऐसे मरुद्यानों में लोग मकान बनाकर रहते हैं और ज्वार-बाजरे की खेती करते हैं। यहाँ हरियाली और कुछ पेड़ दिखाई देते हैं। बबूल और खजूर यहाँ के मुख्य पेड़ हैं।

मरुद्यान

इस मरुस्थल में कुछ ऐसे भी लोग हैं जो मकान बनाकर एक ही स्थान पर नहीं रहते, सदैव घूमते-फिरते रहते हैं। ये लोग अधिकतर भेड़-बकरियाँ आदि पशु पालते हैं। जहाँ कहीं पशुओं के लिए घास मिल जाती है ये लोग वहीं रुक जाते हैं। फिर नए स्थान की खोज में चल पड़ते हैं। ऐसे लोगों को 'खानाबदोश' कहते हैं। गर्मी के दिनों में यहाँ घास-पात मिलना कठिन हो जाता है। इसलिए ये लोग घूमते हुए समीप के राज्यों में चले जाते हैं। बरसात के आरंभ होते ही ये अपने राज्य को लौट पड़ते हैं। खानाबदोश लोग अपनी जीविका कई प्रकार के काम करके कमाते हैं। 'गाड़िया लुहार' यहाँ के घूमते-फिरते दस्तकार हैं। ये लोग अधिकतर लोहे

गाड़िया लुहार का घर और परिवार

की चीज़ें बनाकर बेचते हैं। चित्र में इनका चलता-फिरता घर और पहनावा देखो।

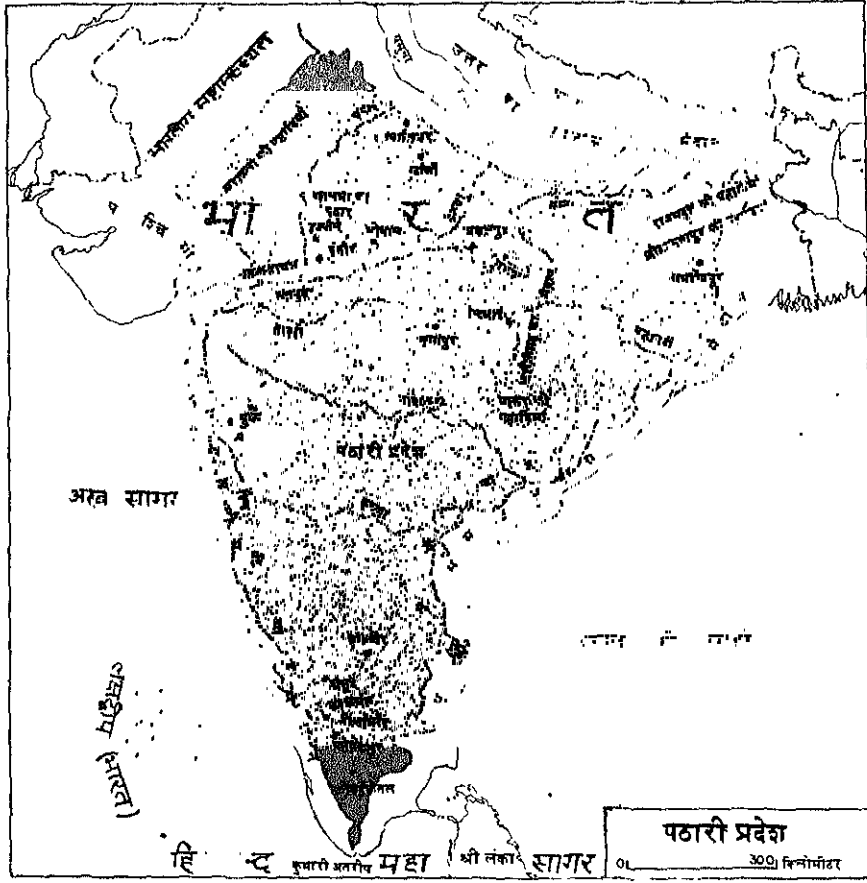
मरुस्थल की भूमि खेती के लिए अच्छी है परंतु पानी की कमी के कारण यहाँ खेती नहीं हो पाती थी। सतलुज की नहर द्वारा मरुस्थल के कुछ भाग में पानी पहुँचाया गया है जिससे खेती होने लगी है। गंगानगर का इलाका तो गेहूँ पैदा करने का एक बड़ा केन्द्र बन गया है। सूरतगढ़ फार्म यहीं पर है।

मरुस्थल के कठोर जीवन ने यहाँ के रहनेवालों को साहसी और परिश्रमी बना दिया है। पुराने समय में यहाँ के लोगों ने बहुत परिश्रम से जोधपुर, बीकानेर, जैसलमेर जैसी रियासतें बनाईं। अब ये सभी राजस्थान राज्य के अंग हैं।

अब बताओ

1. मरुस्थल और उत्तर का उपजाऊ मैदान किन-किन बातों में भिन्न हैं?
2. मरुस्थल में रहनेवाले लोगों की संख्या कम क्यों है?
3. मरुस्थल में दिन में गर्मी और रात को ठंड क्यों होती है?
4. मरुस्थल में सड़कें बनाना और रेलवे लाइन बिछाना कठिन कार्य क्यों है?

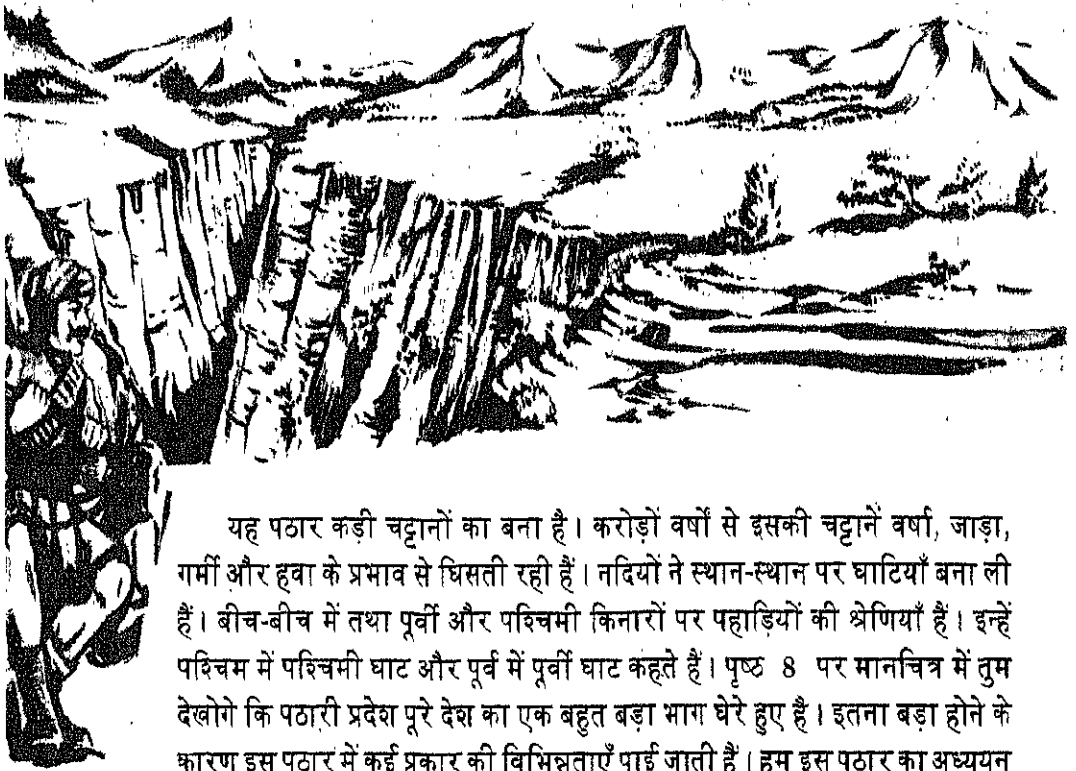
कुछ करने को

1. भारत के मानचित्र में दिखाओ :
   (क) भारत का मरुस्थल।
   (ख) जोधपुर, बीकानेर, जैसलमेर, गंगानगर और बाड़मेर।
   (ग) सतलुज की नहर।
2. अपने अध्यापक से मरुस्थल में यात्रा करनेवाले काफ़िले की कहानी सुनो।

भारत के महासर्वेक्षक की अनुज्ञानुसार भारतीय सर्वेक्षण विभाग के मानचित्र पर आधारित।

समुद्र में भारत का जल प्रदेश उपयुक्त आधार रेखा से मापे गये बारह समुद्री मील की दूरी तक है।

4. पठारी प्रदेश

उत्तरी मैदान के दक्षिण में पठारी क्षेत्र है। यह भारत के एक बहुत बड़े भाग में फैला है। पठारी क्षेत्र की भूमि न तो उत्तरी मैदान की तरह समतल है और न यहाँ हिमालय जैसे ऊँचे पर्वत हैं। यहाँ भूमि अधिकतर पथरीली और ऊँची-नीची है। कहीं-कहीं पहाड़ियाँ हैं, परंतु उनकी ऊँचाई अधिक नहीं है।

ऊपर मानचित्र में पठारी प्रदेश का तिकोना फैलाव देखो। इस तिकोन का एक सिरा राजस्थान में अरावली की पहाड़ियाँ हैं। दूसरा सिरा है बिहार में राजमहल की पहाड़ियाँ और तीसरा सिरा केरल राज्य में कार्डेमम-पहाड़ियाँ हैं।

यह पठार कड़ी चट्टानों का बना है। करोड़ों वर्षों से इसकी चट्टानें वर्षा, जाड़ा, गर्मी और हवा के प्रभाव से घिसती रही हैं। नदियों ने स्थान-स्थान पर घाटियाँ बना ली हैं। बीच-बीच में तथा पूर्वी और पश्चिमी किनारों पर पहाड़ियों की श्रेणियाँ हैं। इन्हें पश्चिम में पश्चिमी घाट और पूर्व में पूर्वी घाट कहते हैं। पृष्ठ 8 पर मानचित्र में तुम देखोगे कि पठारी प्रदेश पूरे देश का एक बहुत बड़ा भाग घेरे हुए है। इतना बड़ा होने के कारण इस पठार में कई प्रकार की विभिन्नताएँ पाई जाती हैं। हम इस पठार का अध्ययन चार भागों में बाँट कर करेंगे।

उत्तर-पश्चिमी भाग

यह भाग अरावली की पहाड़ियों से लेकर बेतवा नदी की घाटी तक फैला है। कुछ ऊँचे भागों को छोड़कर इस प्रदेश में गर्मी के दिनों में काफ़ी गर्मी पड़ती है। सर्दी के दिनों में सर्दी भी काफ़ी होती है। वर्षा साधारण होती है और पश्चिम की ओर कम होती जाती है। यहाँ जंगल घने नहीं हैं।

भूमि ऊँची-नीची है इसलिए नदियों में पानी का बहाव बहुत तेज़ होता है। कहीं-कहीं तो पानी बरसने के दो-चार घंटों में ही सारा पानी सिमटकर नदी में जा पहुँचता है। पठारी नदियों के तेज़ बहाव के कारण कुछ भूमि में खड्ड बन गए हैं। मानचित्र में देखो मालवा का पठार भी इसी भाग में है। यह बहुत उपजाऊ है। यहाँ की मिट्टी काली है। कपास, गेहूँ और तिलहन यहाँ की मुख्य उपज हैं।

उत्तर-पूर्वी भाग

मानचित्र में महानदी को देखो। इस नदी ने पहाड़ियों को हज़ारों वर्ष तक घिस-घिसकर एक नीचा-सा मैदान बनाया है। इसे छत्तीसगढ़ का मैदान कहते हैं। यह मैदान गंगा के मैदान की भाँति नदियों द्वारा लाई हुई मिट्टी से नहीं बना है।

महानदी की घाटी में चावल खूब पैदा होता है। वर्षा तो इस पूरे क्षेत्र में काफ़ी होती है। बाढ़ का भय रहता है। परंतु बरसात के बाद पानी की कमी हो जाती है। इसीलिए सिंचाई करने और बाढ़ रोकने के लिए महानदी पर एक बाँध बनाया गया है। इस बाँध का नाम हीराकुड है। यहाँ बिजली भी पैदा की जाती है।

छत्तीसगढ़ के मैदान के उत्तर का भाग छोटा नागपुर का पठार कहलाता है। यह हमारे देश में खनिज पदार्थों का सबसे बड़ा भंडार है। यहाँ से हमें सबसे अधिक कोयला, लोहा, मैंगनीज़ और अभ्रक जैसे खनिज मिलते हैं। यहाँ के वनों से लकड़ी, लाख, गोंद आदि मिलते हैं।

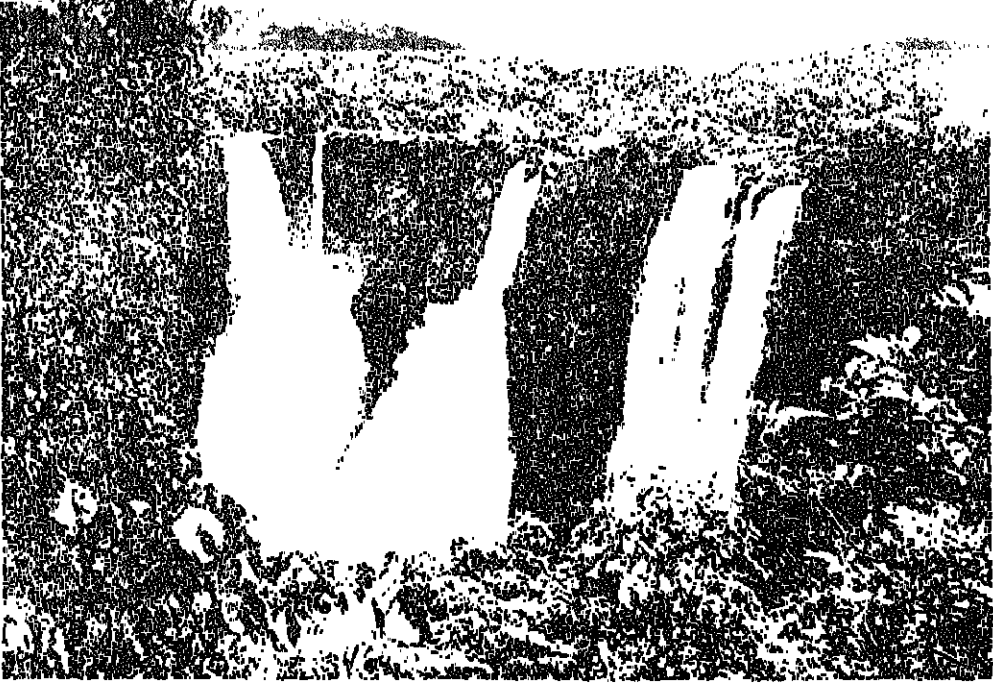
छत्तीसगढ़ के मैदान के दक्षिण में बस्तर की पहाड़ियाँ हैं। यहाँ पर घने वन हैं। इनमें सागौन, साल आदि के वृक्ष और बाँस मिलते हैं। बाँस कागज़ बनाने के काम आता है।

पठार का मध्य भाग

नर्मदा और कृष्णा नदी के बीच के भाग को मानचित्र में देखो। यह पठार का मध्य भाग है।

नर्मदा, तापी, गोदावरी और कृष्णा इस भाग की बड़ी नदियाँ हैं। मानचित्र में देखो कि ये किस ओर बहती हैं। इस भाग की मिट्टी काली है। करोड़ों वर्ष हुए इस क्षेत्र की भूमि में लंबी-लंबी गहरी दरारें पड़ गईं। इन दरारों में से भभकता हुआ पतला लावा निकला जो इस क्षेत्र में फैल गया। धीरे-धीरे वह लावा ठंडा हुआ। वर्षा, पानी, धूप आदि ने इसे घिसकर और तोड़कर इसकी ऊपरी परतों को मिट्टी में मिला दिया। यही है वह काली मिट्टी जो खेती के रूप में सोना उगलती है। यह मिट्टी उपजाऊ तो होती ही है, साथ ही देर से सूखती है और इसमें उगनेवाले पौधों को नमी मिलती रहती है। काली मिट्टी कपास की खेती के लिए बहुत उपयोगी है। भारत में सबसे अधिक कपास इसी क्षेत्र में होती है।

कपास का पौधा

पश्चिमी घाट में बहुत अधिक वर्षा होती है। पूर्व की ओर वर्षा कम होती जाती है। यहाँ पर गर्मी तो पड़ती है पर लू नहीं चलती। सर्दी इतनी कम होती है कि ऊनी कपड़ों की ज़रूरत नहीं पड़ती।

जोग प्रपात

पठार का धुर-दक्षिणी भाग

आओ अब कुछ और दक्षिण की ओर चलें।

पश्चिमी और पूर्वी घाट के बीच पठार काफ़ी सँकरा है। दक्षिण में नीलगिरि की पहाड़ियों पर तो पूर्वी और पश्चिमी घाट दोनों मिल जाते हैं। नीलगिरि इस पूरे पठार का सबसे ऊँचा भाग है। नीलगिरि के दक्षिण में एक चौड़ा दर्रा है। इसे पालघाट कहते हैं। पूर्व और पश्चिम की ओर आने-जानेवाले अधिकतर मार्ग पालघाट से गुज़रते हैं।

नदियों ने इस पठार में गहरी घाटियाँ बना ली हैं। कड़ी चट्टानों के कारण स्थान-स्थान पर जलप्रपात बन गए हैं। इनमें जोग प्रपात सबसे प्रसिद्ध है। मानचित्र में कावेरी नदी को देखो। इस नदी पर बाँध बनाकर सिंचाई के लिए पानी लिया जाता है और बिजली पैदा की जाती है।

यहाँ पर जाड़े और गर्मी की ऋतु में बहुत अंतर नहीं है। सालभर एक समान सूती कपड़े पहने जाते हैं। पहाड़ी स्थानों पर कभी-कभी ऊनी कपड़े पहनने की ज़रूरत पड़ती है। ओत्तकमंडु (उटकमंड) और कोडेक्कानद (कोडईकैनल) यहाँ के सुंदर पहाड़ी स्थान हैं। पश्चिमी घाट के पहाड़ों पर अधिक वर्षा होती है। इसलिए यहाँ घने वन पाए जाते हैं। कहीं-कहीं ये वन इतने घने हैं कि दिन में भी अंधेरा रहता है। यहाँ

बाघ, चीता, हाथी आदि जंगली पशु पाए जाते हैं। इन वनों से हमें सागौन और चंदन की लकड़ी भी मिलती है। पूर्व की ओर वर्षा कम होती जाती है और वन भी कम होते जाते हैं।

यहाँ पानी की कमी है। अधिकतर भूमि चट्टानी है। इसलिए खेती के योग्य भूमि कम है और यहाँ पर कम लोग रहते हैं। फिर भी तालाबों से सिंचाई करके कपास, मूँगफली, गन्ना और ज्वार की खेती की जाती है। पहाड़ों की ढालों पर चाय, कहवा और रबड़ पैदा करते हैं।

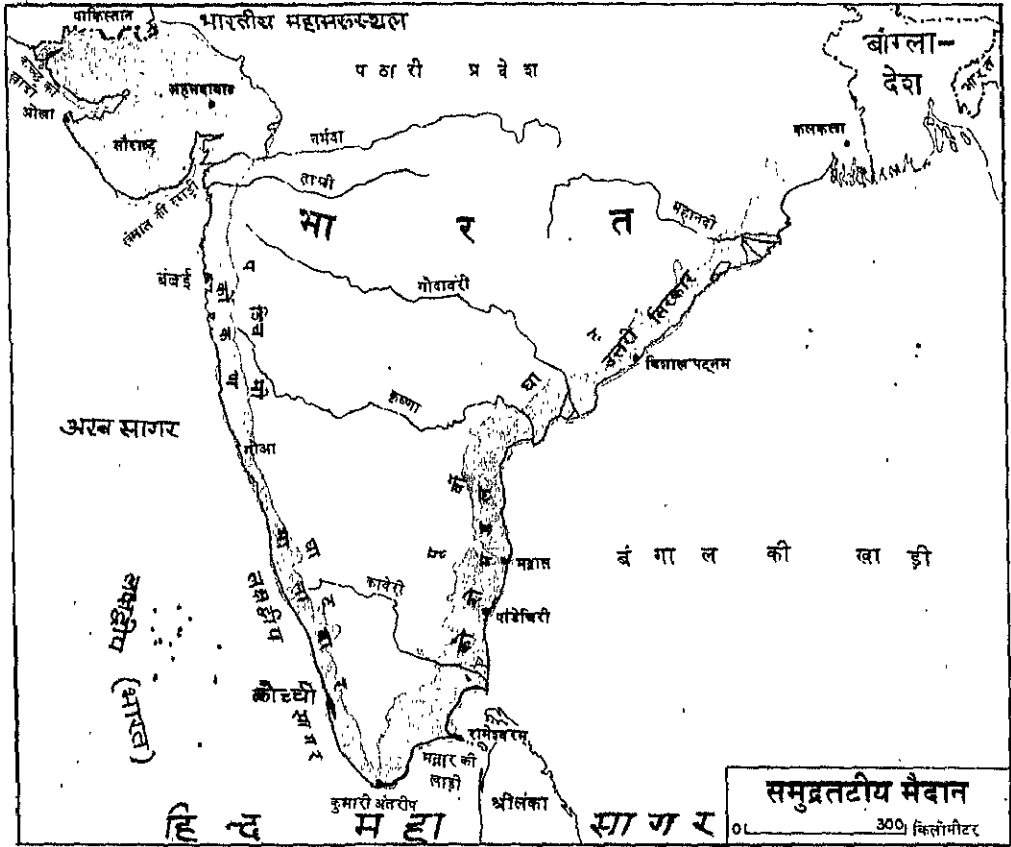
अब बताओ

1. भारत के पठारी प्रदेश का आकार कैसा है ?
2. नीचे पठारी प्रदेश की कुछ नदियों के नाम दिए गए हैं। प्रत्येक नदी के बराबर खाली जगह में उसके बहने की दिशा लिखो :

नदी	**बहाव की दिशा**
चंबल	________________
सोन	________________
महानदी	________________
नर्मदा	________________
गोदावरी	________________
तापी	________________
कावेरी	________________

3. पठारी नदियों में बाढ़ अधिक क्यों आती है ?
4. छत्तीसगढ़ का मैदान गंगा के मैदान से किस तरह भिन्न है ?
5. पठार के उत्तर-पूर्वी भाग का महत्त्व क्यों बढ़ रहा है ?

कुछ करने को

1. भारत के पठार का एक मॉडल मिट्टी से बनाकर उसमें प्रमुख पहाड़ियाँ तथा नदियाँ दिखाओ।
2. अपने अध्यापक की सहायता से छत्तीसगढ़ प्रदेश में रहनेवाले कुछ आदिवासियों के जीवन के संबंध में मालूम करो।

भारत के महासर्वेक्षक की अनुज्ञानुसार भारतीय सर्वेक्षण विभाग के मानचित्र पर आधारित।

समुद्र में भारत का जल प्रदेश उपयुक्त आधार रेखा से मापे गये बारह समुद्री मील की दूरी तक है।

5. समुद्रतटीय मैदान

यदि हम पश्चिमी घाट से पश्चिम में अरब सागर के तट तक चलते जाएँ तो हरा-भरा मैदान मिलता है। परंतु यह उत्तर के उपजाऊ मैदान की भाँति लंबा-चौड़ा और समतल नहीं है। यह मैदान सँकरा और ढलवाँ है। इसी प्रकार पूर्वी घाट और बंगाल की खाड़ी के बीच सँकरा मैदान है। ये समुद्रतटीय मैदान कहलाते हैं। पूर्वी तटीय मैदान की अपेक्षा पश्चिमी तटीय मैदान में अधिक हरियाली दिखाई देती है।

चलो, इन तटीय मैदानों की जानकारी के लिए दोनों तटों के किनारे-किनारे समुद्र-यात्रा करें। तुम जानते हो कि कच्छ की खाड़ी में स्थित काँडला हमारे देश का

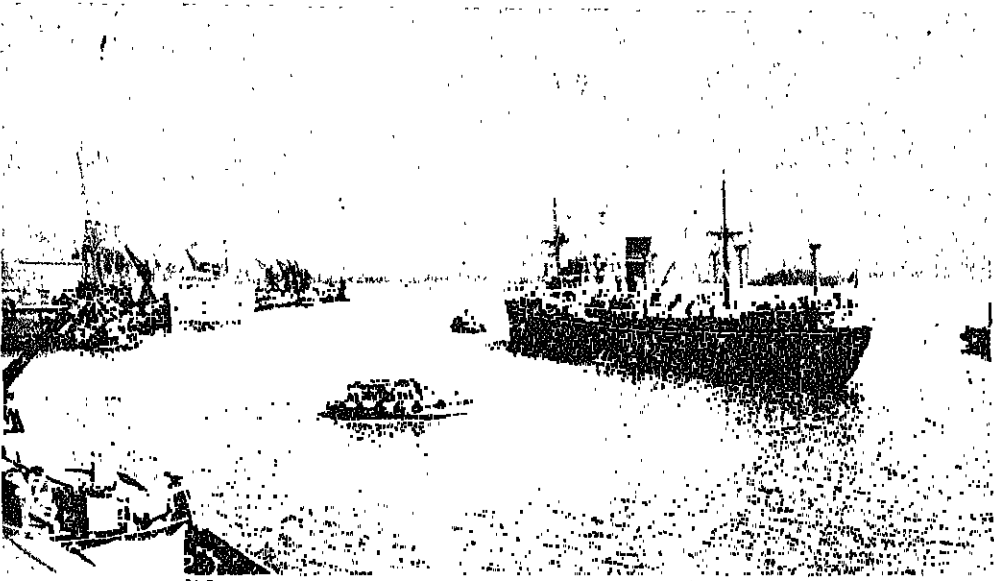
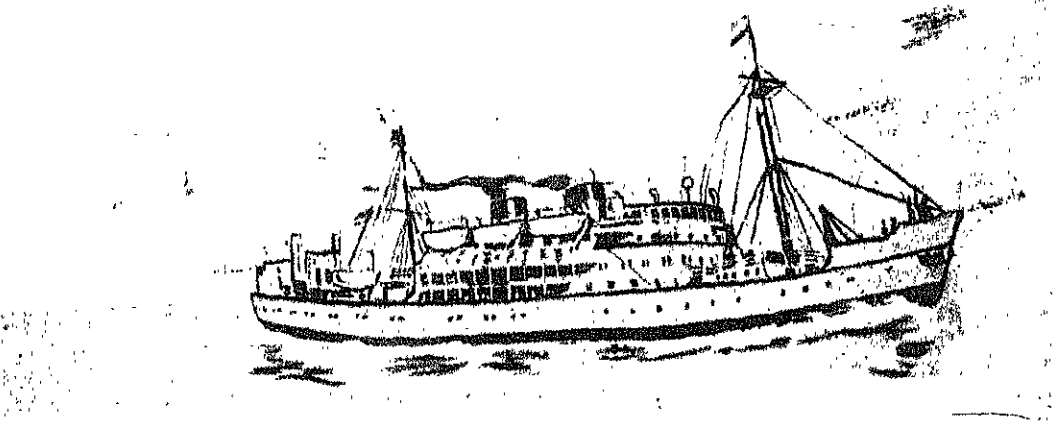
एक प्रसिद्ध बंदरगाह है। परंतु हमारी यात्रा पश्चिम में अरब सागर के तट पर स्थित ओखा बंदरगाह से शुरू होगी। पृष्ठ 61 पर मानचित्र में देखो कि तुम्हारे नगर से ओखा किस दिशा में है। अपने नगर से ओखा तक का रेलमार्ग भी मानचित्र में देखो।

ओखा स्टेशन से हम ओखा बंदरगाह चलेंगे। समुद्र-तट के पास एक स्थान पर तुम्हें कई जहाज़ समुद्र में खड़े मिलेंगे। इनमें से कुछ तो बाहर से आए हैं और कुछ दूसरे स्थानों को जाने वाले हैं। कुछ जहाज़ बड़े हैं, कुछ छोटे। यही बंदरगाह है। हमारी यात्रा यहीं से आरंभ होगी।

हमारा जहाज़ बहुत बड़ा नहीं है। यह बहुत लंबी यात्रा नहीं करता। यह तो केवल पश्चिमी और पूर्वी तट के बंदरगाहों तक आता-जाता है।

देखो, हमारा जहाज़ बंदरगाह छोड़ चुका है और गहरे समुद्र की ओर बढ़ रहा है। देखो समुद्र कितना बड़ा है! लहरें अब काफ़ी ऊँची हो गई हैं परंतु जहाज़ उन्हें चीरता हुआ पश्चिमी तट के साथ-साथ आगे बढ़ता जा रहा है। पुराने समय में जब पाल के जहाज़ चलते थे तो इन लहरों पर काबू पाना कठिन था। जहाज़ की चाल अब तेज़ हो गई है और अब हमारा जहाज़ 'सौराष्ट्र प्रायद्वीप' का चक्कर लगाकर खंभात की ओर बढ़ रहा है। पृष्ठ 28 पर मानचित्र में सौराष्ट्र प्रायद्वीप और खंभात की खाड़ी देखो।

अब हमारा जहाज़ खंभात की खाड़ी में आ गया है। यहाँ किनारे के मैदानी भाग में

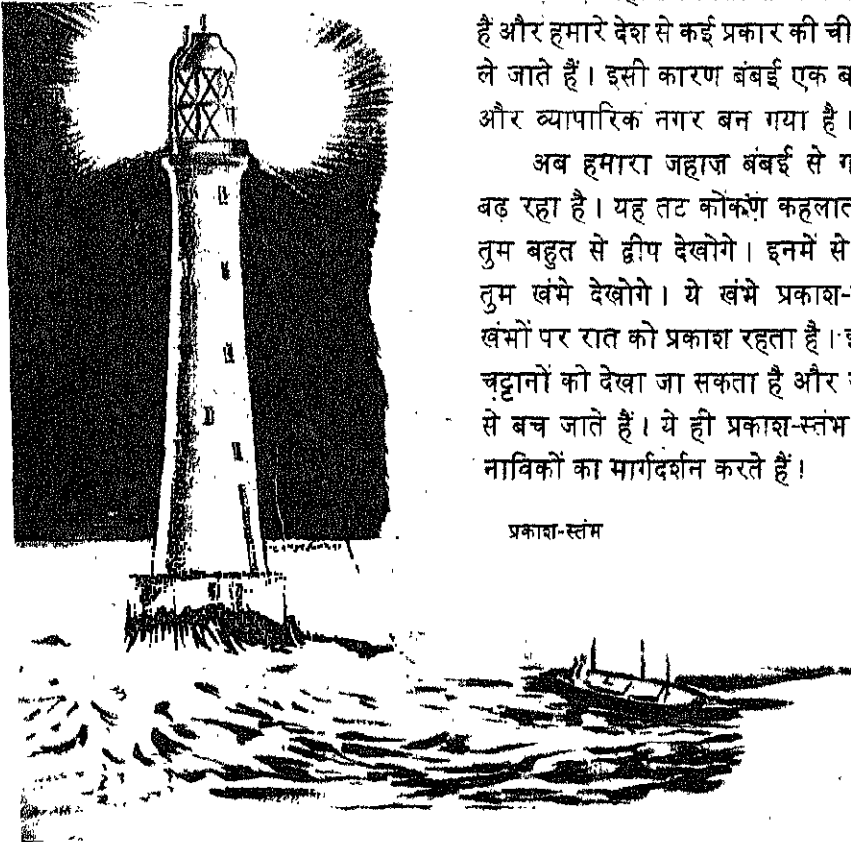
एक बंदरगाह

आधुनिक जहाज

अधिकतर कपास की खेती होती है। इसी भाग में समुद्र से दूर अहमदाबाद नगर है।

खंभात से हमारा जहाज़ पश्चिमी तट के साथ-साथ दक्षिण की ओर बढ़ रहा है। इसी भाग में नर्मदा और तापी के मुहाने हैं, जहाँ ये नदियाँ अरब सागर में गिरती हैं।

अब हम बंबई के बंदरगाह पर पहुँच गए हैं। यहाँ पर बड़े-बड़े जहाज विदेशों से आकर माल उतारते हैं और हमारे देश से कई प्रकार की चीज़ें विदेशों को ले जाते हैं। इसी कारण बंबई एक बड़ा औद्योगिक और व्यापारिक नगर बन गया है।

अब हमारा जहाज़ बंबई से गोआ की ओर बढ़ रहा है। यह तट कोंकण कहलाता है। मार्ग में तुम बहुत से द्वीप देखोगे। इनमें से कुछ द्वीपों में तुम खंभे देखोगे। ये खंभे प्रकाश-स्तंभ हैं। इन खंभों पर रात को प्रकाश रहता है। इनके प्रकाश में चट्टानों को देखा जा सकता है और जहाज़ टकराने से बच जाते हैं। ये ही प्रकाश-स्तंभ रात के समय नाविकों का मार्गदर्शन करते हैं।

प्रकाश-स्तंभ

देखो, हमारा जहाज़ गोआ से और दक्षिण की ओर बढ़ रहा है। यह तट मलाबार कहलाता है। अब तुम तट के साथ-साथ रेत के टीले देखोगे। ये टीले समुद्र की लहरों के साथ आई रेत के जमाव से बने हैं। समुद्र के समीप मैदानों में ऊँचे-ऊँचे नारियल के पेड़ दिखाई देते हैं। ये पेड़ इस भाग में रहनेवालों के लिए बहुत काम के हैं। उन राज्यों के नाम बताओ जिनमें इस तट का भाग सम्मिलित है और यह भी बताओ कि इस भाग के रहनेवाले किस प्रकार नारियल का उपयोग करते हैं।

पाल का जहाज़

इस क्षेत्र में तुम एक और विशेष बात देखोगे। रेत के टीलों और तटीय मैदान के बीच में झीलें-सी दिखाई पड़ती हैं। वास्तव में ये झीलें नहीं हैं। यह समुद्र का पानी है जो निचले भागों में रुक गया है। इन्हें अनूप कहते हैं। अनूप एक-दूसरे से नहरों द्वारा मिले हुए हैं। लोग एक अनूप से दूसरे अनूप को नाव द्वारा जाते हैं। अनूपों के समीप की भूमि पर नारियल और केला बहुत पैदा होता है। इस क्षेत्र में चावल की खेती भी खूब होती है।

इस भाग में पहाड़ी की तलहटी में जंगल बहुत मिलते हैं। इनमें कई प्रकार की लकड़ी मिलती है जो हमारे बहुत काम आती है। यहाँ रबड़ के पेड़ भी लगाए गए हैं। रबड़ से पहियों के टायर और ट्यूब, गेंद, जूते आदि बनाए जाते हैं। आसपास की भूमि में लौंग, काली मिर्च, काजू भी पैदा किए जाते हैं।

मलाबार-तट पर हरियाली बहुत है। तुम सोचते होगे कि इस भाग में हरियाली इतनी अधिक क्यों है। समुद्र से उठकर भाप-भरे बादल यहाँ वर्षा करते हैं। मुश्किल से साल में एक या दो महीने ही ऐसे होते हैं जब यहाँ वर्षा नहीं होती। देखो, अब हम कोचीन के बंदरगाह पर आ गए। आजकल हमारी सरकार इस बंदरगाह का विकास कर रही है। इसे अधिक गहरा और बड़ा बनाया जा रहा है, जिससे यहाँ बड़े-बड़े जहाज़ आ-जा सकें।

अब हमारा जहाज़ कन्याकुमारी की ओर बढ़ रहा है। लो, हम कन्याकुमारी आ पहुँचे। यहाँ पर भूमि का नुकीला भाग दूर तक समुद्र में चला गया है। देखो यह भाग तीन ओर समुद्र से घिरा हुआ है। ऐसे भू-भाग को अंतरीप कहते हैं। यहाँ अरब सागर,

हिन्द महासागर और बंगाल की खाड़ी मिलते हैं। देखो, यहाँ कितने लोग मछली पकड़ रहे हैं।

अब हम कन्याकुमारी से पूर्वी तट के साथ-साथ उत्तर की ओर बढ़ रहे हैं। जहाज़ अब मनार की खाड़ी में पहुँच गया है। यही खाड़ी हमारे देश को श्रीलंका द्वीप से अलग करती है। यहाँ और भी कई छोटे-छोटे द्वीप हैं। इन्हीं में से एक द्वीप में रामेश्वरम् का प्रसिद्ध मंदिर है। खाड़ी से निकलकर अब हमारा जहाज़ कावेरी नदी के डेल्टे की ओर जा रहा है। कावेरी नदी पूर्वी तट पर डेल्टा बनाकर बंगाल की खाड़ी में गिरती है। इस डेल्टे के उत्तर में मद्रास का बंदरगाह है।

समुद्र में दीवारें दिखाई देने लगी हैं। ऐसा मालूम पड़ता है कि हम मद्रास पहुँच गए। मद्रास का बंदरगाह बंबई और कोचीन जैसा नहीं है। कटा-फटा न होने के कारण तट पर कोई ऐसा स्थान नहीं है जहाँ जहाज़ लहरों से बच सके। जहाज़ों को समुद्र की लहरों से बचाने के लिए यहाँ दीवारें बनाई गई हैं। दीवारें बन जाने से बंदरगाह का उपयोग बढ़ गया है। मद्रास एक बड़ा नगर है। कन्याकुमारी से मद्रास तक का तट 'कोरोमंडल' कहलाता है। इस भाग में अधिकतर वर्षा अक्तूबर से दिसंबर तक होती है।

पृष्ठ 28 पर मानचित्र में देखो, मद्रास के उत्तर में कृष्णा और गोदावरी नदियाँ समुद्र में आ मिलती हैं। यहाँ तटीय मैदान चौड़ा है। इन नदियों के कारण मैदान उपजाऊ बन गया है। यहाँ मुख्य रूप से धान की खेती होती है। कहीं-कहीं तिलहन और गन्ना भी पैदा किया जाता है। इस भाग में सिंचाई के लिए नहरें और तालाब बनाए गए हैं।

गोदावरी नदी के उत्तर में मैदान सँकरा है। यह तट 'उत्तरी सरकार' कहलाता है। मानचित्र को ध्यान से देखो और मैदान सँकरा होने के कारण बताओ। अब हम विशाखा-पटनम बंदरगाह पर आ गए। यहाँ पर समुद्र बहुत गहरा है। विशाखापटनम में जहाज़ बनते हैं।

यहाँ से हम महानदी के डेल्टे की ओर बढ़ रहे हैं। यहाँ तटीय मैदान फिर चौड़े हो गए हैं। इस भाग में अधिक वर्षा जून से सितंबर तक होती है। यहाँ की भूमि चावल की उपज के लिए अच्छी है। महानदी के डेल्टे से उत्तर की ओर चलने पर गंगा का डेल्टा आ जाता है और यहीं हमारी समुद्रतटीय यात्रा समाप्त हो जाती है।

अब बताओ

1. समुद्रतटीय मैदान में रहनेवालों का मुख्य भोजन क्या है ? क्यों ?
2. समुद्रतटीय मैदान में रहनेवालों के मुख्य धंधे बताओ।

3. कोरोमंडल और मलाबार समुद्रतटीय मैदानों में कौन-कौन-सी भिन्नताएँ हैं ?
4. समुद्रतटीय मैदान और गंगा के मैदान के विषय में कुछ बातें नीचे दी गई हैं। जो बातें दोनों के लिए सही हैं उनके आगे कोष्ठक में (द) लिखो। जो बातें गंगा के मैदान के लिए सही हैं उनके सामने (ग) लिखो। जो बातें तटीय मैदानों के लिए सही हैं उनके आगे (त) लिखो :
   ( ) बहुत लंबा-चौड़ा है।
   ( ) बहुत समतल है।
   ( ) भूमि उपजाऊ है।
   ( ) गेहूँ और चावल लोगों का मुख्य भोजन है।
   ( ) भूमि ढलवाँ है।
   ( ) मछली और चावल लोगों का मुख्य भोजन है।
   ( ) सिंचाई की आवश्यकता होती है।
5. नीचे लिखे वाक्यों को पूरा करो :
   ____________ तट पर रेत के टीले दिखाई देते हैं।
   समुद्र का वह भाग जो तीन ओर भूमि से घिरा होता है, ____________ कहलाता है।
   भूमि का वह भाग जो तीन ओर समुद्र से घिरा होता है, ____________ कहलाता है।

कुछ करने को

1. मानचित्र में देखकर
   (क) भारत में समुद्रतटीय मैदानों पर स्थित बंदरगाहों के नाम लिखो।
   (ख) खाड़ियों के नाम लिखो।
2. रामेश्वरम्, बंबई, मद्रास, विशाखापटनम, कन्याकुमारी और गोआ के चित्र एकत्र करो।

भारत की विकास योजनाएँ

तुम जानते हो हमारा देश कितना विशाल है। यहाँ कई प्रकार की उपजाऊ मिट्टी मिलती है। इसमें कई तरह की पैदावार हो सकती है। सारे देश में नदियों का जाल फैला है। इनके पानी से खेतों की सिंचाई हो सकती है और घरों तथा कारखानों के लिए बिजली प्राप्त की जा सकती है। देश के वनों से हमें कीमती लकड़ी, लाख, गोंद आदि उपयोगी चीज़ें मिलती हैं। इतना ही नहीं भूमि की तहों में लोहा, कोयला, अभ्रक और मैंगनीज़ जैसे खनिज छिपे हैं। उपजाऊ मिट्टी, नदियाँ, वन और खनिज पदार्थ हमारे देश की प्राकृतिक संपत्ति हैं। प्राकृतिक संपत्ति का देश में भंडार है, फिर भी हमारे देश में बहुत-से लोगों के पास भोजन, कपड़ा और मकान जैसी ज़रूरी चीज़ों की कमी है। घर में बिजली, रेडियो, पंखा और टेलीफ़ोन की सुविधाएँ तो बहुतों के पास नहीं हैं। बहुत-से लोग तो पढ़-लिख भी नहीं सकते।

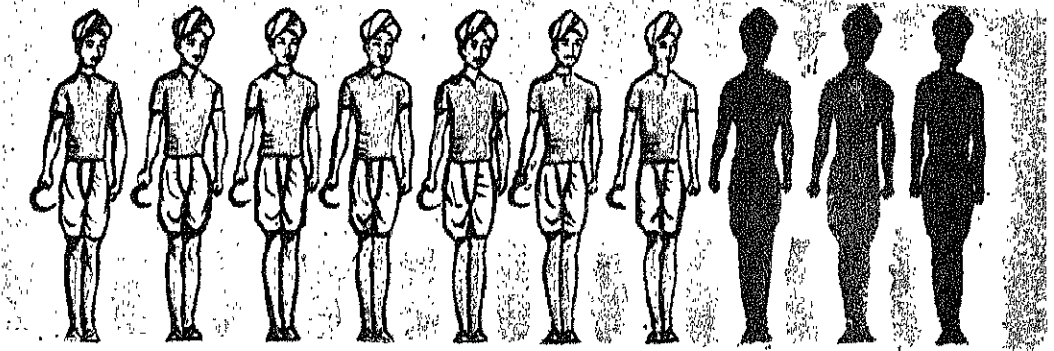
देश की गरीबी और पिछड़ेपन को दूर करने के लिए अब हमें क्या करना है?

हमें अपने खेतों की पैदावार बढ़ानी है, वनों और खनिज पदार्थों का सही प्रयोग करना है। खेतों की सिंचाई और बिजली बनाने के लिए नदियों के पानी का उपयोग करना है। लोगों को पढ़ा-लिखा बनाना है। इस प्रकार लोगों का जीवन अच्छा और सुखी बनाना है।

सब प्रकार से देश की उन्नति करना एक बड़ा और कठिन काम है। इसके लिए इस प्रकार के प्रश्नों पर विचार करना ज़रूरी है: खेती में सुधार कैसे हो सकता है? कौन-कौन-से उद्योग शुरू करने होंगे? कितने और कहाँ बाँध बनाने हैं? कितने स्कूल, कालेज और अस्पताल खोलने ज़रूरी हैं? यह सब करने के लिए कितना धन चाहिए और यह धन कैसे प्राप्त किया जाए? इन सब प्रश्नों को हल करने के लिए हमारी सरकार ने पंचवर्षीय योजनाएँ बनाईं। विकास की ये योजनाएँ सन् 1951 ई० में शुरू की गईं। प्रत्येक योजना पाँच वर्ष के लिए बनी। इसीलिए इन्हें पंचवर्षीय योजना कहते हैं। हम तीन पंचवर्षीय योजनाएँ पूरी कर चुके हैं।

अगले पाठों में तुम पढ़ोगे कि किस प्रकार हम अपनी पंचवर्षीय योजनाओं द्वारा प्राकृतिक संपत्ति का विकास और प्रयोग कर रहे हैं।

6. हमारे खेतों की बढ़ती उपज

क्या तुम जानते हो खेती हमारे लिए कितनी आवश्यक है? इससे हमें खाने के लिए अनाज, कपड़ों के लिए कपास, पशुओं के लिए चारा और कारखानों के लिए गन्ना तथा पटसन जैसी चीज़ें मिलती हैं। हमारे देश में प्रति दस लोगों में सात अपनी रोज़ी खेती से ही कमाते हैं। इतना ही नहीं देश की लगभग आधी भूमि खेती के काम आ रही है।

मिट्टी, जलवायु और पानी खेती के लिए आवश्यक हैं। ये सभी साधन हमारे देश में काफ़ी हैं। तुम पढ़ चुके हो कि हमारे देश में विभिन्न प्रकार की उपज के लिए भिन्न-भिन्न प्रकार की मिट्टी और जलवायु मिलती है। तुम भारत के विभिन्न राज्यों की उपज के विषय में भी पढ़ चुके हो। अपने राज्य की प्रमुख उपज की सूची बनाओ।

शायद तुम यह भी जानते हो कि हमें बहुत-सा गेहूँ और चावल दूसरे देशों से खरीदना पड़ता है। तुम सोचते होगे कि ऐसा क्यों है। हम अपने लिए काफ़ी अनाज क्यों नहीं पैदा कर पाते? इसके कई कारण हैं।

हमारे देश में रहनेवाले लोगों की संख्या प्रतिवर्ष बढ़ रही है। इनके लिए अधिक भोजन की ज़रूरत है। देश में नए-नए कारखाने खोले जा रहे हैं। इनके लिए अधिक कच्चे माल की जरूरत है। क्या तुम बता सकते हो, खेतों की पैदावार कैसे बढ़ाई जा सकती है? शायद तुम कहोगे—'अधिक भूमि पर खेती करने से'। ठीक है, अधिक भूमि पर खेती करने से पैदावार बढ़ सकती है। परंतु तुम यह भी जानते हो कि देश की कुल भूमि को तो नहीं बढ़ाया जा सकता। देश की लगभग आधी भूमि में खेती की जा रही है। कुछ भूमि पर पहाड़ और वन हैं और कहीं मिट्टी खेती के लिए उपयोगी नहीं है। परंतु

अभी भी हमारे देश में कुछ ऐसी भूमि बेकार पड़ी है जिसमें खेती की जा सकती है। पंचवर्षीय योजनाओं द्वारा ऐसी सारी भूमि को धीरे-धीरे खेती के काम में लाया जा रहा है। परंतु खेतों की पैदावार बढ़ाने का यह केवल एक तरीका है। कुछ किसान पैदावार बढ़ाने के लिए दूसरे तरीक़े भी प्रयोग कर रहे हैं।

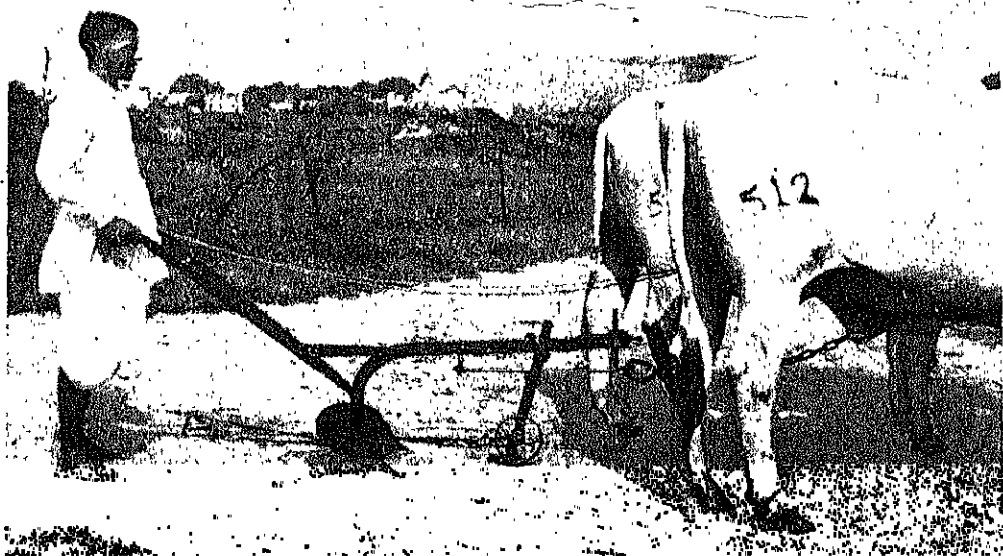
रामू एक पढ़ा-लिखा किसान है। उसने अपने खेतों की उपज को काफ़ी बढ़ाया है। सोहन पास के गाँव का एक बूढ़ा किसान है। सोहन रामू से यह पूछने गया है कि उसने अपने खेतों की पैदावार कैसे बढ़ाई। चलो, हम भी उनकी बातें सुनें।

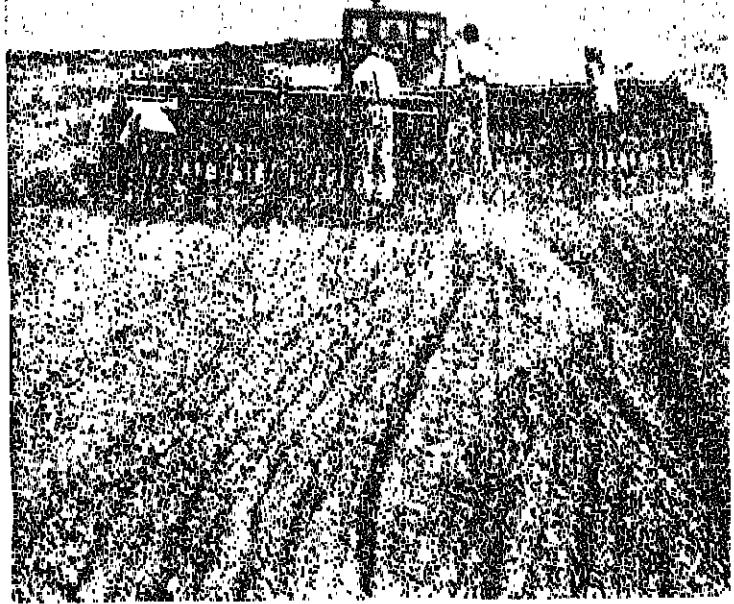
सोहन : क्यों रामू भैया, तुमने अपने खेत में क्या जादू किया है? ज़रा हमें भी बताओ कि तुम्हारे खेत की पैदावार कैसे बढ़ रही है।

रामू : सोहन दादा! पहले मैं हर साल अपनी फ़सल में से कुछ गेहूँ और दूसरा अनाज बीज के लिए बचाकर रख लेता था। यह बीज अच्छा नहीं होता था। अब सरकार की देख-रेख में कुछ खेतों में अच्छा बीज पैदा किया जाता है। उसे बीज-गोदामों में जमा किया जाता है। यह अच्छा बीज किसान खरीदकर अपने खेतों में डालते हैं। मैंने भी यह अच्छा बीज खरीदकर अपने खेतों में डाला। इससे मेरे खेतों में अच्छी फ़सल पैदा होने लगी है।

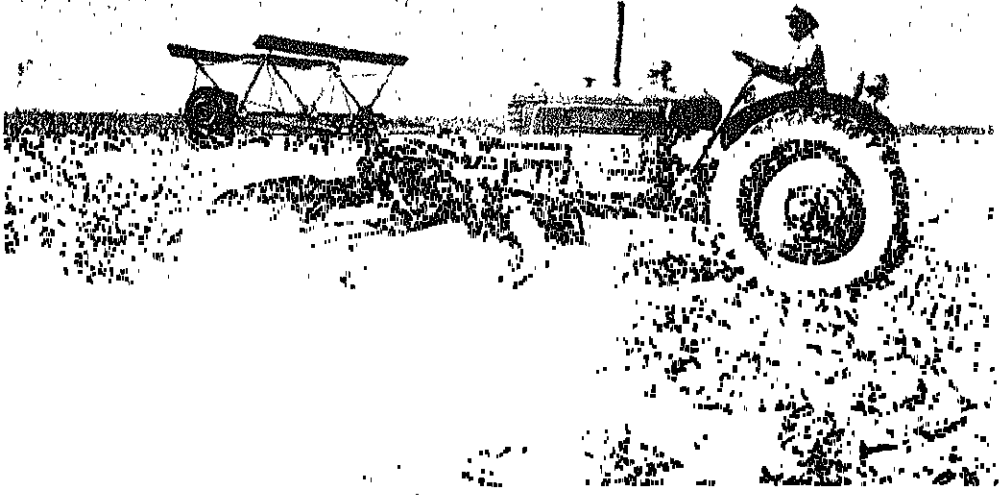
सोहन : लेकिन रामू, तुमने अपने खेत की पैदावार बढ़ाने के लिए कुछ और भी तो किया होगा। केवल बीज डालने से तो फ़सल इतनी अच्छी नहीं होती।

रामू : जब कोई फ़सल बोई जाती है, वह मिट्टी के कुछ उपजाऊ गुणों को चूस लेती है और मिट्टी की उपज-शक्ति कम हो जाती है। लेकिन खाद से मिट्टी में फिर से यह शक्ति बढ़ जाती है। मुझे यह बात बहुत पहले से मालूम थी और मैं गोबर की कुछ खाद डाला करता था, लेकिन मेरे खेतों के लिए शायद वह काफ़ी नहीं

लोहे का हल

होती थी। अब मैं गोबर की खाद के साथ-साथ कारखानों में बनी रासायनिक खाद भी डालता हूँ। इससे अधिक उपज होती है। रासायनिक खाद के अब हमारे देश में कई कारखाने हैं।

तुम तो जानते हो, किशन चंद का खेत बड़ा है और उसके पास पैसा भी अधिक है। उसके खेत में ट्रैक्टर चलता है। इससे थोड़े ही समय में भूमि की गहरी जुताई हो जाती है। मेरे पास ट्रैक्टर नहीं है, लेकिन मैंने भी कुछ ऐसे यंत्र ले लिए हैं जिनसे खेती के काम अच्छी तरह और जल्दी होते हैं। पहले मैं लकड़ी का हल प्रयोग करता था। अब मेरे पास लोहे का हल है। यह लकड़ी के हल से बढ़िया है। मैंने बीज बोने और फ़सल काटने की मशीनें भी ख़रीद ली हैं। इन मशीनों से मेरा खेती का काम जल्दी और अच्छा होता है।

बीज बोने की मशीन

सोहन : रामू, खेतों की उपज बढ़ाने में पंचवर्षीय योजनाओं से तुम्हें क्या सहायता मिलती है?

रामू : तुम्हें मालूम नहीं। पहले हमारे देश में अच्छे बीजों के खेत, ख़ाद के कारखाने और खेती के यंत्र बनानेवाले कारखाने नहीं थे। अब योजनाओं के कारण ये सब चीज़ें देश में बनने लगी हैं। इतना ही नहीं, सरकार ने और भी सहायता की है। कुछ सरकारी अधिकारी हमारे गाँव में आते हैं। उन्होंने हमें खेती के नए और अच्छे तरीक़े सिखाए हैं। उन्होंने हमें बताया : बार-बार ज़मीन में एक ही फ़सल बोने से उस फ़सल के लिए भूमि की उपज-शक्ति कम हो जाती है। पौधों को सीधी पंक्ति में बोना चाहिए। ख़ाद और पानी ठीक समय पर देना चाहिए।

फ़सल काटने की मशीन

जापान के लोग इस जैसी भूमि में हम से तीन गुना अधिक चावल पैदा करते हैं। खेती करने के तरीक़ों में सुधार करने से हम भी अपने खेतों की उपज बढ़ा सकते हैं।

सरकार ने हमारी सबसे बड़ी मदद सिंचाई में की है। पहले मैं कितनी भी मेहनत करके फ़सल बोता, पर मन में डर बना रहता था कि कहीं वर्षा न हुई तो फ़सल सूख जाएगी। परंतु अब ऐसा नहीं है। जानते हो क्यों? मैंने सरकार से रुपया उधार लेकर अपने खेत में नलकूप लगा लिया है। उससे अब मुझे जब चाहूँ और जितना चाहूँ, पानी मिल सकता है। देश के सभी भागों में नदियों पर बाँध बनाकर नहरों द्वारा खेतों में पानी पहुँचाने का प्रबंध किया जा रहा है।

सोहन : धन्यवाद, रामू भैया! तुमने मुझे पैदावार बढ़ाने के तरीक़ों की अच्छी जानकारी दी। परंतु मेरी कठिनाई इससे अलग है। मेरी कुछ भूमि में खेती नहीं की जा सकती है। यह भूमि ढलवाँ है। तेज आँधियों और वर्षा के कारण उन खेतों की उपजाऊ मिट्टी बह गई है। क्या तुम इस भूमि को भी खेती के योग्य बनाने का कोई तरीक़ा बता सकते हो?

रामू : समझ गया, तुम्हारे इस खेत में 'मिट्टी का कटाव' हो गया है। हमारे देश में 'मिट्टी के कटाव' के कारण बहुत-सी भूमि खेती के लिए बेकार हो गई है। कटाव

से मिट्टी की रक्षा करना आवश्यक है। तुमने देखा होगा जहाँ घास या पेड़-पौधे लगे रहते हैं उस स्थान की मिट्टी हवा या वर्षा से नहीं बहती। घास और पौधों की जड़ें मिट्टी को बाँध लेती हैं और अपने स्थान से हटने नहीं देतीं। खेत में मेंड़ बना देने से भी पानी के बहाव की गति कम हो जाती है। इसलिए तुम अपने खेतों में कटाव से मिट्टी की रक्षा करने के लिए मेंड़ बना सकते हो और उसके आस-पास घास या पेड़-पौधे लगा सकते हो।

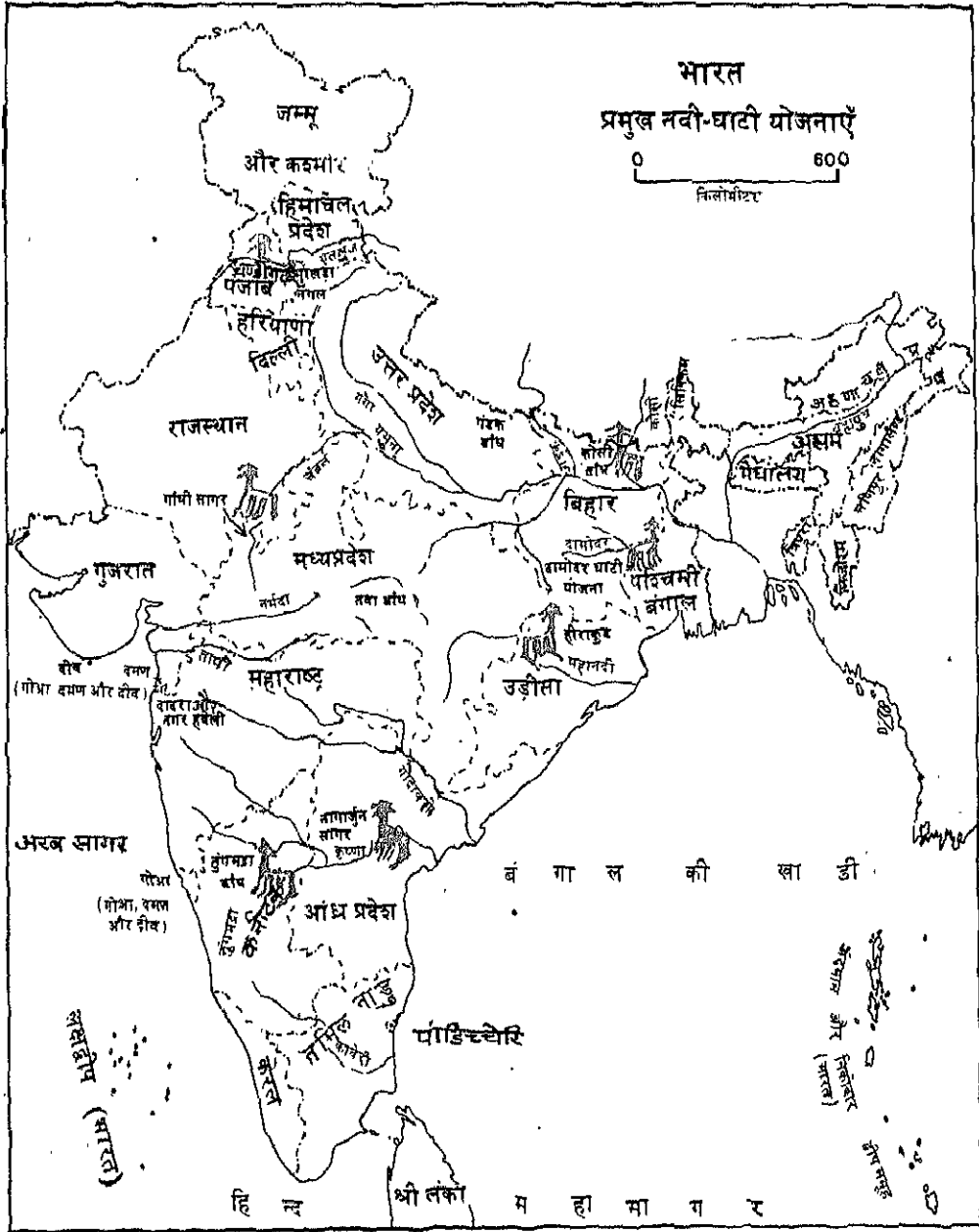
सोहन : धन्यवाद, रामू भैया ! अब मैं ऐसा ही करूँगा।

अब बताओ

1. खेती हमारे लिए क्यों आवश्यक है ?
2. खेती की पैदावार बढ़ाना क्यों आवश्यक है ?
3. पंचवर्षीय योजनाओं में खेतों की पैदावार बढ़ाने के लिए क्या किया जा रहा है ?
4. 'मिट्टी के कटाव' से तुम क्या समझते हो ? इसे कैसे रोका जा सकता है ?
5. नीचे कुछ कथन दिए गए हैं। इनमें से जो खेतों की पैदावार बढ़ाने से संबंधित हों उन पर (✓) का निशान लगाओ :

   ( ) भूमि में बार-बार एक ही फसल बोनी चाहिए।
   ( ) ट्रैक्टर से खेत को जोतना चाहिए।
   ( ) केवल गोबर की खाद डालनी चाहिए।
   ( ) अच्छा बीज बोना चाहिए।
   ( ) बीज सीधी पंक्ति में बोने चाहिए।

कुछ करने को

1. किसी गाँव में जाओ और किसानों से पूछो :
   (क) वे किस प्रकार की खाद का प्रयोग करते हैं।
   (ख) वे मिट्टी के कटाव को रोकने के क्या उपाय करते हैं।
2. अपनी कक्षा में बातचीत करो कि 'खेतों की पैदावार कैसे बढ़ाई जा सकती है।'

भारत के महासर्वेक्षक की अनुज्ञानुसार भारतीय सर्वेक्षण विभाग के मानचित्र पर आधारित।

समुद्र में भारत का जल प्रदेश उपयुक्त आधार रेखा से मापे गये बारह समुद्री मील की दूरी तक है।

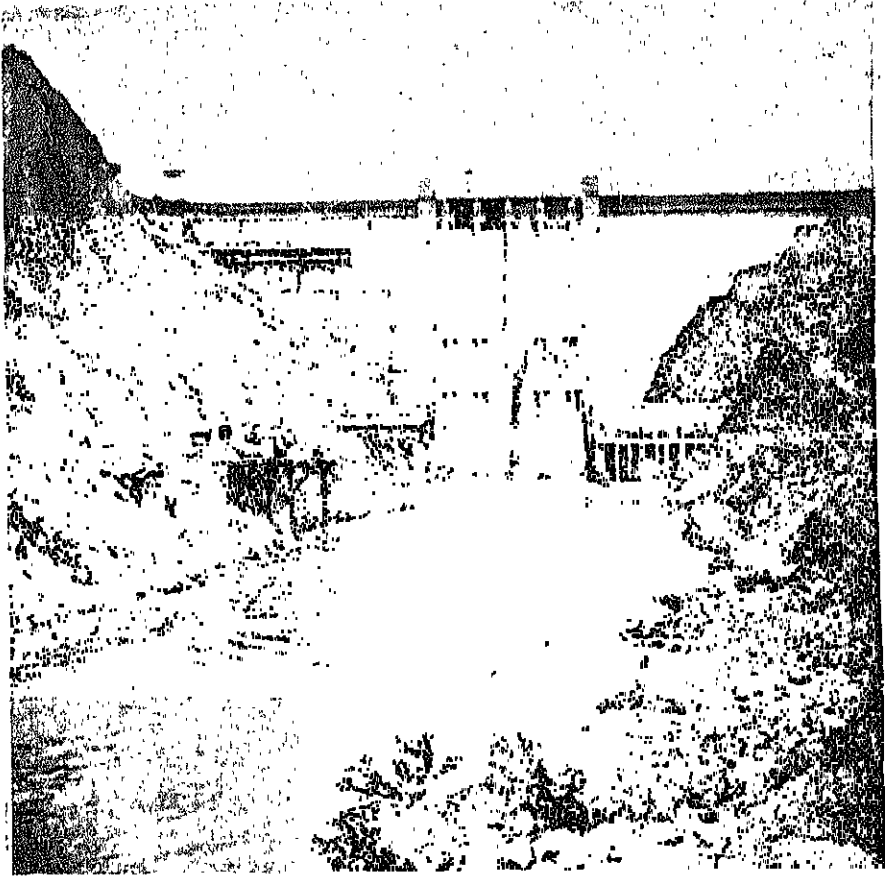
इस मानचित्र में मेघालय की सीमा, उत्तर पूर्वी क्षेत्र (पुनर्गठन) अधिनियम, 1971 के निर्वचनानुसार दर्शित है, परन्तु अभी सत्यापित होनी है।

7. हमारी सिंचाई और बिजली योजनाएँ

हमारे देश में बहुत-सी नदियाँ हैं। पुराने समय से किसान नदियों के पानी से खेतों की सिंचाई करते आए हैं। परंतु अब हमें अपने खेतों की उपज बढ़ाने के लिए नदियों के पानी का और भी अधिक उपयोग करना है। हमें देश के कारखानों की पैदावार को भी बढ़ाना है। इसके लिए अधिक बिजली की आवश्यकता है। नदियों का पानी बिजली बनाने के काम भी आता है। नदियों पर बाँध बनाकर पानी एकत्र किया जाता है। इकट्ठे किए गए पानी का उपयोग सिंचाई करने और बिजली बनाने के लिए किया जाता है। साथ ही साथ ये बाँध बाढ़ भी रोकते हैं। इन बाँधों को बनाने के कई उद्देश्य हैं। इसलिए हम इन योजनाओं को 'बहु-उद्देश्यीय नदी-घाटी-परियोजनाएँ' कहते हैं। गंडक, कोसी, तवा, कृष्णा, नागार्जुन सागर, तुंगभद्रा, हीराकुड, भाखड़ा-नंगल, चंबल और मयूराक्षी देश की प्रमुख नदी-घाटी-परियोजनाओं में से हैं। बाँध बनाने की ऐसी परियोजनाएँ देश के भिन्न-भिन्न भागों में हैं। पृष्ठ 40 पर मानचित्र में इन परियोजनाओं के नाम देखो।

भाखड़ा बाँध सतलुज नदी पर बनाया गया है। यह संसार के सबसे ऊँचे बाँधों में से एक है। दिल्ली के एक स्कूल के बच्चे पिछली छुट्टियों में भाखड़ा और नंगल देखकर आए हैं। आओ, उनका लिखा वर्णन पढ़ें।

हम सब बच्चे और हमारे अध्यापकजी रात को दस बजे के लगभग दिल्ली स्टेशन से रेलगाड़ी में बैठकर नंगल के लिए चल पड़े। दूसरे दिन सुबह आठ बजे के लगभग गाड़ी नंगल स्टेशन पर पहुँची। पहले नंगल एक छोटा-सा गाँव था। अब बाँध पर काम करनेवाले बहुत-से लोग यहाँ रहने लगे हैं और नंगल एक अच्छा नगर बन गया है। नंगल से बस में बैठकर हम भाखड़ा गए। नंगल से भाखड़ा लगभग 13 किलोमीटर की दूरी पर है। रास्ता पहाड़ी है। ऊँची-नीची बल खाती हुई सड़क पर बस चलती है। सड़क के दोनों ओर पहाड़ियाँ हैं। जैसे-जैसे आगे बढ़ते हैं इन पहाड़ियों के बीच की दूरी कम होती-जाती है। भाखड़ा के समीप दोनों ओर के पहाड़ों में दूरी सबसे कम है।

इस विशाल बाँध को देखकर हम अचरज में पड़ गए। बहुत ऊँचे से पानी की दो सफ़ेद धाराएँ नीचे गिर रही थीं। शोर तो बहुत दूर से सुनाई पड़ रहा था। अब पानी की फुहारों का बादल भी दिखाई देने लगा। हम लोग इस बाँध के बारे में जानने के लिए

भाखड़ा बाँध

उत्सुक हो उठे।

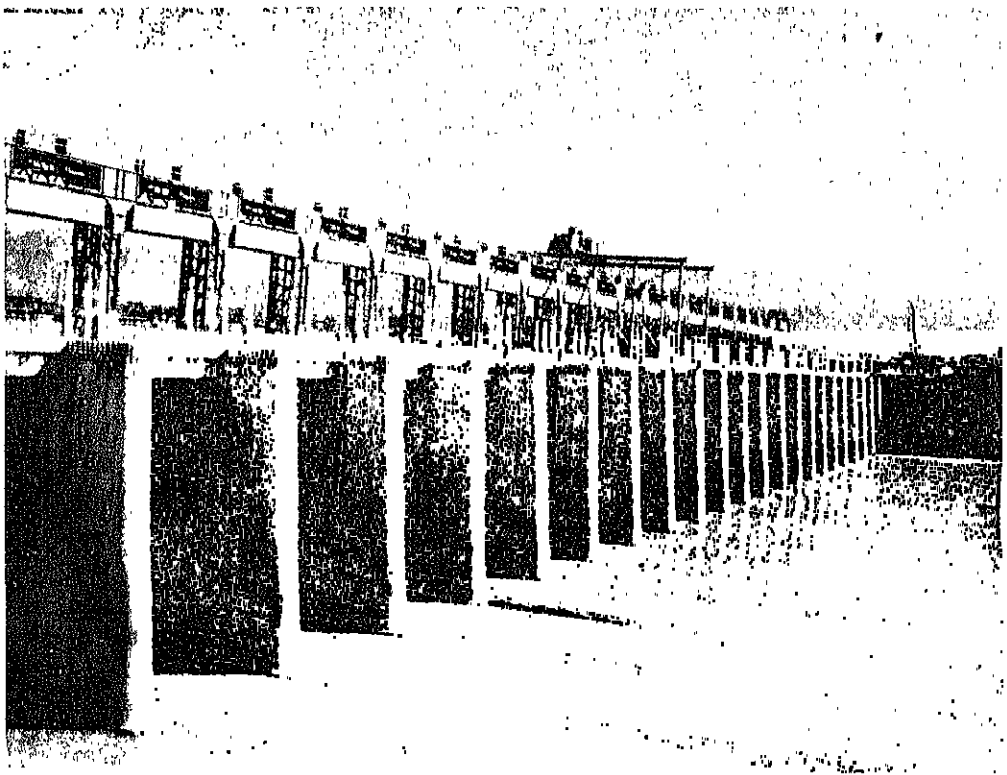
रमेश बोल उठा, "गुरुजी, यह कितना बड़ा बाँध है? इसकी ऊँचाई कितनी है?" गुरुजी ने कहा, "यह बाँध लगभग 225 मीटर ऊँचा है। यह दुनिया के सबसे ऊँचे बाँधों में से है। इस बाँध के बनाने में 20 वर्ष लगे हैं और लगभग पौने दो सौ करोड़ रुपया खर्च हुआ है।"

कमला ने पूछा, "गुरुजी, इस बाँध के बनाने में तो बहुत मेहनत पड़ी होगी। देखिए, कैसे दो पहाड़ों के बीच यह बाँध दीवार बनकर सतलुज नदी के पानी को रोके खड़ा है। इसके पीछे सतलुज का पानी तो एक सागर के समान दिखाई देता है।" गुरुजी ने उत्तर दिया, "तुम ठीक कहती हो, कमला। इसे 'गोविन्द सागर' कहते हैं। यह मनुष्य की बनाई हुई संसार की सबसे बड़ी झील है।"

हम लोग और अधिक जानना चाहते थे। विजय ने पूछा, "गुरुजी, गोविन्द सागर का पानी तो बाँध के पीछे रुक गया है। इसका सिंचाई और बिजली बनाने के लिए प्रयोग कैसे किया जाता है ?"

गुरुजी ने कहा, "आओ, यह सब जानकारी प्राप्त करने के लिए किसी 'गाइड' की सहायता लें।"

गाइड : "यह देखो, बाँध के बीच में स्थान-स्थान पर लोहे के फाटक नज़र आ रहे हैं। मशीनों द्वारा इन फाटकों को ऊपर उठाया या गिराया जा सकता है। इससे नदी में जानेवाले पानी की मात्रा बढ़ाई या घटाई जा सकती है। फाटकों से निकलकर यह पानी फिर नदी के रूप में आगे बढ़ता है। नंगल में सतलुज के पानी को बाँध द्वारा रोककर नहर में छोड़ा जाता है। इस नहर से और छोटी-छोटी नहरें निकाली गई हैं जिनसे पंजाब तथा राजस्थान के बहुत बड़े भाग में सिंचाई होती है।"

नंगल का 'बैरेज

विजय : "अब यह बताइए कि नदी के पानी से यहाँ बिजली कैसे बनाई जाती है ?"

यह समझाने के लिए गाइड हमें नीचे बिजलीघर के पास ले गया। वहाँ उसने हमें कई मशीनें दिखाईं और बताया कि भूमि को कुछ और गहरा खोदकर बिजली बनाने की मशीनें लगाई गई हैं। पानी ऊँचाई से इन मशीनों पर जोर से गिरता है जिससे ये मशीनें घूमने लगती हैं। इनको 'टरबाइन' कहते हैं। ये टरबाइन बिजली बनानेवाली मशीनों को चालू करती हैं जिनसे बिजली पैदा हो जाती है। इस बिजली को तारों द्वारा दूर-दूर स्थानों तक पहुँचाया जाता है। यह बिजली दिल्ली तक भी पहुँचाई गई है। इससे घरों और सड़कों पर रोशनी होती है, कारखाने चलते हैं और अन्य बहुत-से काम होते हैं।

बिजलीघर देखने के बाद हम सब बस द्वारा नंगल आए। यहाँ हम वह स्थान देखने गए जहाँ सतलुज से नहर निकाली गई है। हमने देखा कि लोहे के बड़े-बड़े फाटकों की मदद से सतलुज के पानी को रोका गया है। इसे 'बैरेज' कहते हैं। बैरेज के एक ओर पानी की बड़ी झील है तो दूसरी ओर एक बड़ी नहर।

बैरेज देखकर वापस आते समय विजय ने कहा, "गुरुजी, इस यात्रा से हमें बहुत लाभ हुआ। हमने इस योजना के बारे में बहुत-सी बातें जान लीं। क्या दूसरी बहु-उद्देश्यीय परियोजनाएँ भी ऐसी ही हैं ?"

गुरुजी ने उत्तर दिया, "हाँ, दूसरी परियोजनाएँ भी बहुत कुछ ऐसी ही हैं। अगले वर्ष हम कुछ दूसरी परियोजनाएँ देखने चलेंगे।"

अब बताओ

1. खेतों की उपज को बढ़ाने में नदी-घाटी-परियोजनाओं से क्या सहायता मिलती है ?
2. कारखानों में पैदावार बढ़ाने के लिए नदी-घाटी-परियोजनाएँ किस प्रकार सहायता करती हैं ?
3. भाखड़ा बाँध किस नदी पर बनाया गया है ?
4. भाखड़ा बाँध से क्या लाभ है ? इस बाँध से किन-किन राज्यों को लाभ है ?
5. बाँध बनाकर रोके गए पानी से बिजली किस प्रकार बनाई जाती है ?
6. भाखड़ा बाँध के संबंध में कुछ बातें नीचे दी गई हैं। जो ठीक हों उन पर इस प्रकार (✓) सही का निशान लगाओ।

   (   ) इस बाँध को बनाने में लगभग बीस वर्ष लगे हैं।

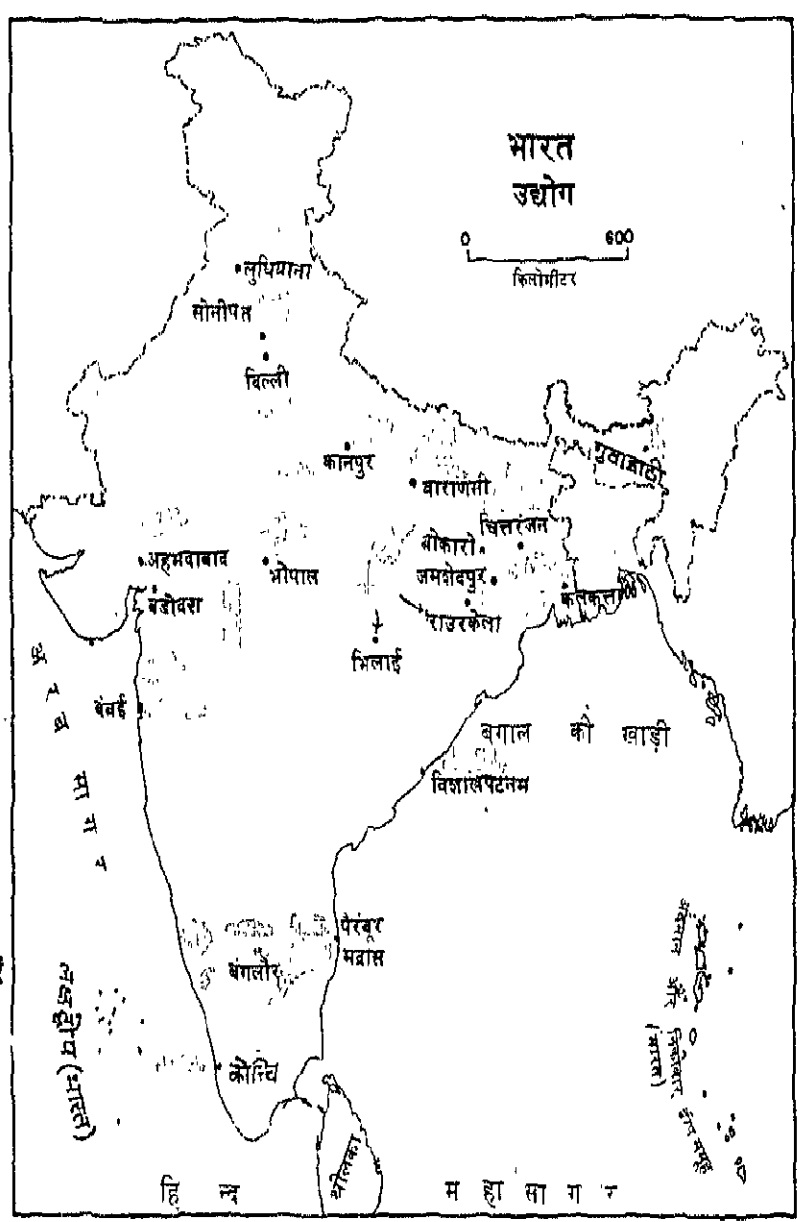
( ) इस पर लगभग पौने दो सौ करोड़ रुपया ख़र्च हुआ है।

( ) इससे सारे पंजाब, हरियाणा, राजस्थान और दिल्ली में सिंचाई होती है।

( ) यह दुनिया के सबसे ऊँचे बाँधों में से है।

( ) यह बाढ़ रोकता है।

कुछ करने को

1. पृष्ठ 40 पर मानचित्र में दिखाई गई नदियों के नामों की सूची बनाओ। प्रत्येक के सामने उस पर बने बाँध का नाम लिखो।
2. देश के प्रमुख बाँधों में से कुछ बाँधों के चित्र एकत्र करो।

भारत के महासर्वेक्षक की अनुज्ञानुसार भारतीय सर्वेक्षण विभाग के मानचित्र पर आधारित।

समुद्र में भारत का जल प्रदेश उपयुक्त आधार रेखा से मापे गए बारह समुद्री मील की दूरी तक है।

8. हमारे बढ़ते उद्योग

जरा सोचो, यदि हमारे देश में कारखाने न हों तो हमारा जीवन कैसा होगा। तुम शायद कहोगे कि हमारे पास साइकिल, मोटर, स्कूटर, रेलगाड़ी और हवाई जहाज कुछ भी नहीं होंगे। हम एक स्थान से दूसरे स्थान तक या तो पैदल जाएँगे या ताँगे और बैलगाड़ी पर बैठकर थोड़ी ही दूर जा सकेंगे। तुम सोच सकते हो, ऐसी दशा में कलकत्ता से मद्रास जाना कितना कठिन होगा। डाक, तार, टेलीफ़ोन, रेडियो और अखबार भी नहीं होंगे। यह पता लगाना कठिन हो जाएगा कि देश के भिन्न-भिन्न भागों में क्या हो रहा है। इतना ही नहीं, तुम्हें अपने वस्त्रों के लिए मिल का बना भाँति-भाँति का सुंदर कपड़ा भी नहीं मिलेगा और न मिलेंगी पढ़ने के लिए सुंदर छपाईवाली पुस्तकें। अब तुम स्वयं सोच सकते हो कि कारखानों के न होने पर हमारा जीवन कैसा होगा।

तुम जानते हो हमारे देश में प्राकृतिक संपत्ति का एक बड़ा भंडार है। देश के विभिन्न भागों में लोहा, कोयला, मैंगनीज़, अभ्रक और सोना जैसे खनिज भूमि के नीचे दबे मिलते हैं। देश की लगभग एक तिहाई भूमि वनों से ढकी हुई है। इनमें लकड़ी और दूसरी उपयोगी चीज़ें मिलती हैं। देश के विभिन्न भागों में भूमि और जलवायु अलग-अलग होने के कारण भिन्न-भिन्न प्रकार की उपज होती है।

देश में चाहे जितनी भी प्राकृतिक संपत्ति हो परंतु लोगों का जीवन सुखी नहीं हो सकता जब तक कि उस संपत्ति का ठीक प्रकार से उपयोग नहीं किया जाता। खानों से हम चाहे जितना कच्चा लोहा निकालें परंतु साइकिलें, मोटरें और रेलगाड़ियाँ नहीं बना सकेंगे, जब तक इन वस्तुओं को बनाने के कारखाने नहीं होंगे। इसी प्रकार हम चाहे जितनी कपास पैदा करें देश के लिए बहुत-सा कपड़ा तो तभी बन सकता है, जब कपड़ा बनाने की मशीनें और कारखाने होंगे। लोहा, कपास आदि जिन वस्तुओं का कारखानों में उत्पादन के लिए प्रयोग होता है उन्हें 'कच्चा माल' कहते हैं। उद्योगों के लिए कच्चा माल खनिज पदार्थों अथवा खेतों की उपज से प्राप्त होता है।

तुम पढ़ चुके हो कि हमारे किसान खेतों में पैदावार बढ़ाने के लिए रासायनिक खाद, ट्रैक्टर और दूसरी मशीनों का प्रयोग करते हैं। खेती के लिए प्रयोग में आनेवाली मशीनें और रासायनिक खाद कारखानों में ही बनाई जाती हैं। इस प्रकार तुम देखते

कपड़ा बनाने की मिल का एक दृश्य

हो कि कारखाने अथवा उद्योग कई प्रकार से देश की उन्नति करने में सहायता देते हैं।

आओ, हम अपने देश के प्रमुख उद्योगों की जानकारी प्राप्त करें। बंबई, अहमदाबाद, कानपुर और कोयंबतूर सूती कपड़ा बनाने के बड़े केन्द्र हैं। क्या तुम बता सकते हो कि सूती कपड़े के कारखाने इन स्थानों पर क्यों बनाए गए हैं? इसी प्रकार बताओ, देश के किन राज्यों में चीनी के कारखाने हैं। कलकत्ता में पटसन के बहुत-से कारखाने हैं। पटसन पश्चिमी बंगाल, असम, बिहार और उड़ीसा में पैदा होता है।

पंचवर्षीय योजनाओं में बहुत-से नए और महत्त्वपूर्ण उद्योग शुरू किए गए हैं। खाद हमारे खेतों के लिए बहुत आवश्यक है। रासायनिक खाद के कारखाने बिहार में सिन्दरी, पंजाब में नंगल, उड़ीसा में राउरकेला, महाराष्ट्र में ट्रांबे, उत्तर प्रदेश में गोरखपुर और मद्रास में नेयवेली में बनाए गए हैं। इन स्थानों को मानचित्र में देखो।

मशीनें व औज़ार बनाने के लिए लोहे और इस्पात की ज़रूरत होती है। हमारे देश में नए-नए कारखाने बन रहे हैं। इनके लिए मशीनों और औज़ारों की माँग बढ़ रही है। पहले हमारे देश में लोहा और इस्पात के तीन प्रमुख कारखाने थे। ये जमशेदपुर (बिहार), बर्नपुर (पश्चिमी बंगाल) तथा भद्रावती (कर्नाटक) में हैं। ये कारखाने देश की लोहा-इस्पात की बढ़ती हुई माँग को पूरा नहीं कर पाते थे। पंचवर्षीय योजनाओं में तीन बड़े

कारखाने खोले गए हैं। ये कारखाने भिलाई (मध्य प्रदेश), दुर्गापुर (पश्चिमी बंगाल) तथा राउरकेला (उड़ीसा) में हैं। इनमें बहुत-से लोग काम करते हैं। ये सभी स्थान औद्योगिक केन्द्र बन गए हैं। ये रेलों और सड़कों द्वारा देश के दूसरे भागों से जुड़े हुए हैं। यहाँ बहुत-से लोग आकर बस गए हैं।

लोहा-इस्पात बनानेवाले इन कारखानों को लौह अयस्क, कोयले और मैंगनीज़ की ज़रूरत होती है। तुम जानते हो कि छोटा नागपुर का पठार खनिज पदार्थों का एक बड़ा भंडार है। यहाँ से ही लोहा-इस्पात बनानेवाले कारखानों को कच्चा माल प्राप्त होता है। मानचित्र में छोटा नागपुर पठार और उन स्थानों को देखो जहाँ ये कारखाने बनाएं गए हैं।

अगले पाठों में तुम यातायात और संचार के साधनों के विषय में पढ़ोगे। ये साधन हमारे लिए बड़े उपयोगी हैं। इनके द्वारा देश के सभी भाग एक-दूसरे से जुड़े हुए हैं। ये हमें भारत और संसार में हर समय होनेवाली घटनाओं की जानकारी कराते हैं। यातायात और संचार के साधन देश की सुरक्षा के लिए भी बहुत आवश्यक हैं।

पश्चिमी बंगाल में चित्तरंजन में रेल के इंजन बनते हैं। डीज़ल इंजन उत्तर प्रदेश में वाराणसी के समीप बनाए जाते हैं। मद्रास के समीप पैरंबूर में रेल के डिब्बे बनाने का कारखाना है। तुम समुद्र-तट के किनारे-किनारे जहाज़ से यात्रा कर चुके हो और जानते

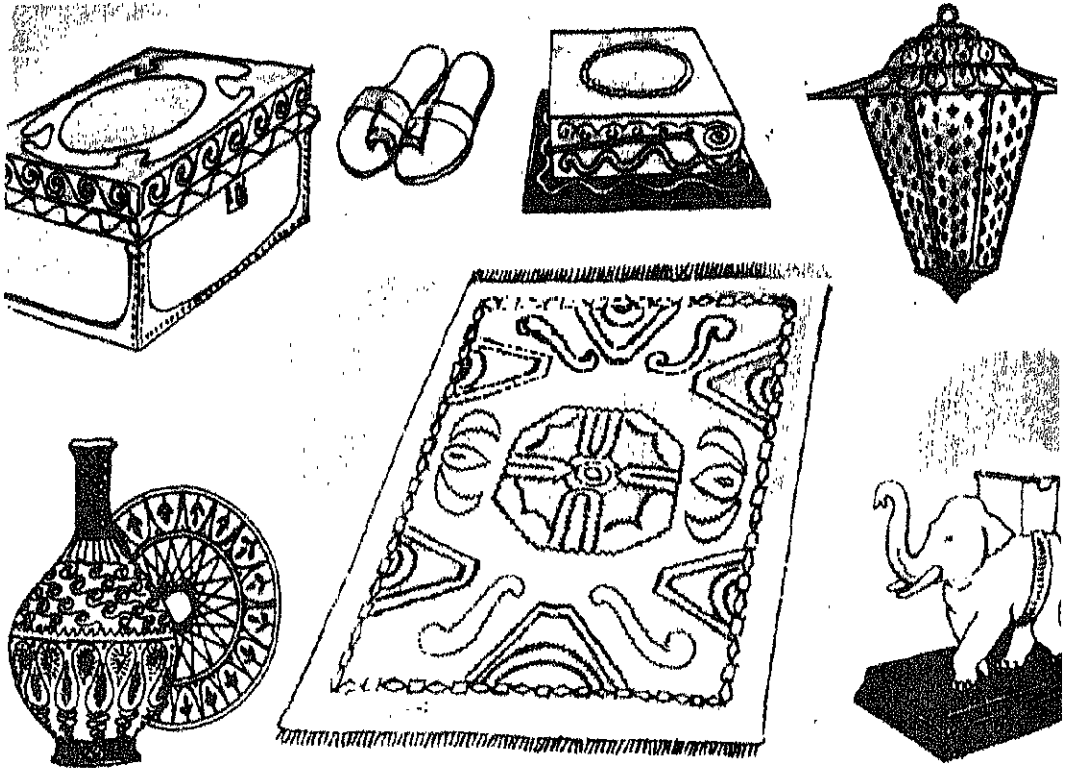
बैंगलौर में टेलीफ़ोन बनाने के कारखाने का एक दृश्य

हो कि हमारे देश का समुद्र-तट लंबा है। आंध्र प्रदेश में विशाखापटनम में समुद्री जहाज़ बनाने का बड़ा कारखाना है। समुद्री जहाज़ बनाने का दूसरा कारखाना केरल में कोचीन में बनाया जा रहा है। बंगलौर और कानपुर में हवाई जहाज़ बनाए जाते हैं। बंगलौर में टेलीफ़ोन बनाने का कारखाना भी है। यहाँ पर सारे देश के लिए टेलीफ़ोन बनते हैं। टेलीफ़ोन के लिए प्रयोग में आनेवाला 'तार' पश्चिमी बंगाल में रूपनारायणपुर में बनता है।

इन महत्त्वपूर्ण उद्योगों के अलावा देश में और भी बहुत-से छोटे-बड़े कारखाने हैं। इन कारखानों में ऊनी कपड़ा, जूते, बिजली के पंखे, सिलाई की मशीनें, साइकिलें, दवाइयाँ, कागज़ और फाउंटेन पैन जैसी बहुत-सी चीज़ें बनाई जाती हैं।

पृष्ठ 46 पर मानचित्र को देखो, इसमें देश के विभिन्न भागों के कुछ बड़े कारखाने दिखाए गए हैं। इनके अतिरिक्त देश के सब राज्यों में और भी बहुत-से छोटे-बड़े कारखाने हैं। इन कारखानों में लाखों लोग काम करते हैं। कारखानों में काम करनेवाले लोगों का जीवन किसानों से भिन्न है। कारखानों में लोग प्रतिदिन लगभग एक जैसा काम करते हैं। उनके काम करने का समय निश्चित होता है। इनकी मज़दूरी अथवा वेतन भी निश्चित होता है।

जिन छोटे-बडे कारखानों के बारे में तुमने इस पाठ में पढ़ा है उन सभी में मशीनों

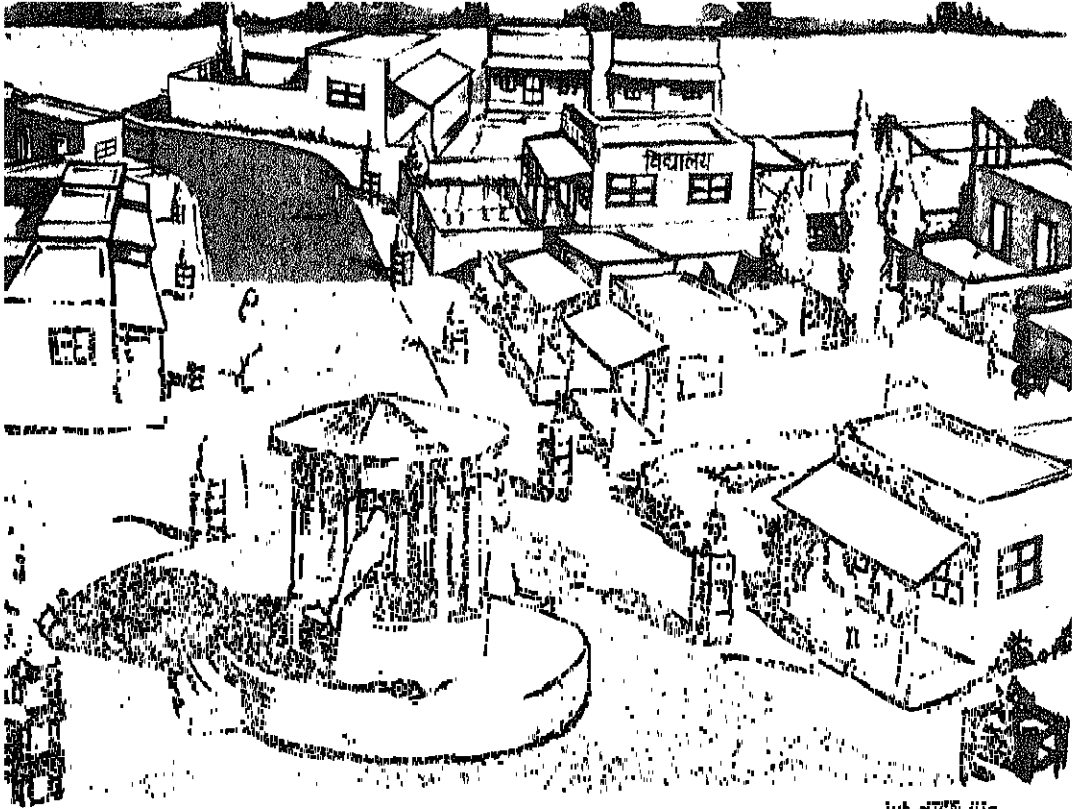
कुटीर-उद्योग में बनी कुछ चीज़ें

का प्रयोग होता है। परंतु तुमने गलीचे, हाथी-दाँत के खिलौने, लकड़ी और कागज़ की बनी सुंदर-सुंदर चीजें भी देखी होंगी। ये सुंदर चीजें दस्तकार आमतौर से अपने घरों में बैठकर बनाते हैं। इन उद्योगों को कुटीर-उद्योग कहते हैं। इन उद्योगों में लोग छोटी-छोटी टोलियों में काम करते हैं। देश में हज़ारों लोग इस प्रकार के उद्योगों में लगे हुए हैं।

अब बताओ

1. उद्योगों से हमें क्या लाभ है ? अपने घर में प्रयोग में आनेवाली ऐसी चीज़ों की एक सूची बनाओ जो कारखानों में बनी हों।
2. भिलाई, दुर्गापुर और राउरकेला में स्थित लोहा-इस्पात के कारखानों के लिए कच्चा माल कहाँ से प्राप्त होता है ?
3. औद्योगिक नगर बड़े और महत्त्वपूर्ण क्यों बनते जा रहे हैं ?
4. नीचे कुछ महत्त्वपूर्ण उद्योगों के नाम दिए गए हैं। प्रत्येक उद्योग के सामने उन स्थानों के नाम लिखो जहाँ ये उद्योग स्थापित हैं :

लोहा-इस्पात	____________
रेल के इंजन	____________
हवाई जहाज़	____________
समुद्री जहाज़	____________
टेलीफ़ोन	____________
रेल के डिब्बे	____________
टेलीफ़ोन के तार	____________
रासायनिक खाद	____________
सूती कपड़ा	____________
पटसन	____________
चीनी	____________

कुछ करने को

1. एक किसान और कारखाने में काम करनेवाले एक मजदूर से बातचीत करके मालूम करो कि उनके जीवन में क्या अंतर है।
2. अपने गुरुजी की सहायता से ऐसी दस चीज़ों के नाम मालूम करो जो कुटीर-उद्योगों में बनी हों।

एक आदर्श गाँव

9. हमारे गाँव आगे बढ़ रहे हैं

हमारे देश के हर दस व्यक्तियों में से आठ गाँव में रहते हैं। गाँवों की संख्या लगभग साढ़े पाँच लाख है जबकि नगरों की संख्या केवल दो हज़ार सात सौ के लगभग है। इसीलिए 'भारत गाँवों का देश' कहा जाता है।

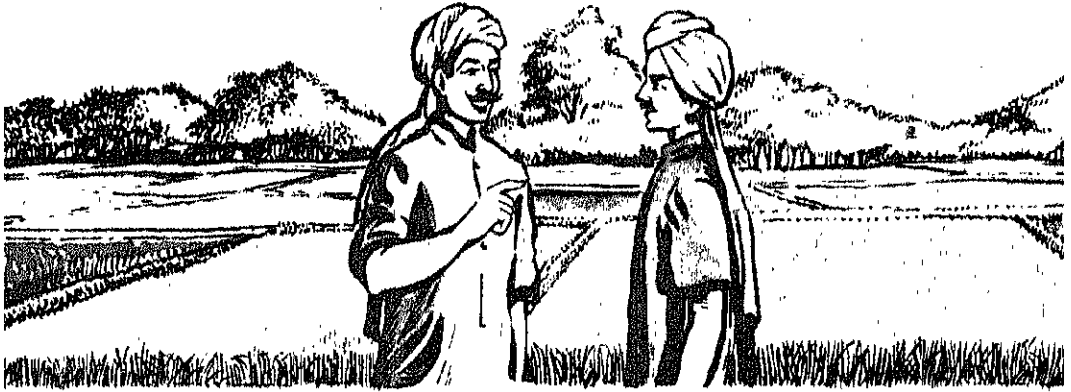
तुम जानते हो कि गाँव और शहर में काफ़ी अंतर होता है। गाँव के रहनेवाले अधिकतर लोग खेती करते हैं। सादे कपड़े पहनते हैं। इनके मकान अकसर कच्चे होते हैं। बिजली भी कुछ ही गाँवों में है। ये लोग पीने का पानी कुएँ, नदी या तालाब से भरकर लाते हैं। गाँवों में पक्की सड़कें भी कम हैं। बहुत-से गाँवों में अस्पताल या डिस्पेन्सरी भी नहीं हैं।

हमारी पंचवर्षीय योजनाओं में गाँवों के विकास पर ज़ोर दिया गया है। गाँव कैसे आगे बढ़ सकते हैं? यदि गाँव में अच्छी पैदावार, छोटे उद्योग-धंधे, बच्चों के पढ़ने के लिए स्कूल, पक्की सड़कें, सफ़ाई, लोगों के रहने के लिए अच्छे मकान और दूसरी

सुविधाएँ हों तो हम कह सकते हैं कि गाँव आगे बढ़ रहे हैं। पिछले कुछ वर्षों में माधोपुर गाँव में बहुत-से सुधार किए गए हैं। आओ, इस गाँव की सैर करें और देखें कि क्या नए काम हुए हैं।

आज़ादी मिलने से पहले माधोपुर गाँव भी एक पुराने गाँव की तरह था। आज़ादी के बाद माधोपुर में नए-नए काम होने लगे हैं। गाँव में पंचायत बन गई है। यह पंचायत गाँव के सुधार के अधिकतर काम करती है।

माधोपुर के खेतों को देखो। पहले यहाँ खेत छोटे-छोटे टुकड़ों में बँटे हुए थे। इनमें ट्रैक्टर और दूसरी मशीनों का प्रयोग करना कठिन था। गाँववालों ने फैसला करके सब किसानों के छोटे-छोटे खेतों को मिला लिया और बड़े-बड़े चक बनाकर किसानों को बाँट दिए हैं। अब गाँव में बड़े-बड़े खेत हैं।

पहले माधोपुर में किसान अलग-अलग जाकर अपना-अपना अनाज बेचते थे। दूसरी फसल के लिए अपना-अपना बीज बचाकर रखते थे। इसका मतलब हुआ कि यदि किसी के खेतों में अनाज घटिया हुआ तो उसे बीज भी घटिया मिलेंगे। कभी उन्हें फसल

बेचने में कठिनाई होती थी। इन सब कठिनाइयों को दूर करने के लिए पंचों ने सोचा कि सब मिलकर एक समिति बनाएँ। गाँव के सब किसान इसके साझीदार हों और यह समिति गाँववालों की उपज बेचे, अच्छे बीज जमा करे और खेती के लिए ज़रूरत पड़ने पर पैसे भी उधार दे। यह समिति गाँववालों को पैसा उधार देने के लिए सरकार से भी पैसा उधार लेती है।

माधोपुर में यह समिति बहुत अच्छा कार्य कर रही है। गाँव के लोग अपने गाँव को सुधारने के लिए कठिन परिश्रम कर रहे हैं। सरकार की ओर से कुछ अधिकारी

भी गाँववालों की सहायता करते हैं। ये अधिकारी गाँववालों को बताते हैं कि किस प्रकार अच्छे बीज, बढ़िया खाद और खेती के अच्छे तरीक़ों से खेतों की पैदावार को बढ़ाया जा सकता है। सरकार की ओर से कुछ अधिकारी गाँव के लोगों के स्वास्थ्य की देखभाल करते हैं।

वह देखो, कुछ किसान अपने सिर पर छोटी-छोटी बोरियाँ ला रहे हैं। आओ उनसे पूछें कि उनके पास क्या है।

"जय हिन्द, भाई साहब ! यह आप क्या ले जा रहे हैं ?"

"भाईजी, यह रासायनिक खाद है। इसे हम अपने खेतों में डालते हैं। इसके प्रयोग से हमारे खेतों की उपज बढ़ जाती है।"

"इसे आप कहाँ से लाते हैं ?"

"यह हम अपनी सहकारी समिति की दुकान से लाते हैं। यह हमें वहाँ सस्ते दामों में मिलती है।"

"वहाँ से आपको और क्या-क्या मिलता है ?"

"वहाँ से हमें अच्छे बीज और नई तरह के सस्ते हल भी मिल जाते हैं। हमारे कुछ भाइयों ने रुपया उधार लेकर खेती करने के लिए ट्रैक्टर भी खरीदे हैं।"

"धन्यवाद !"

आओ, आगे चलें। वह देखो कुछ खेतों में नलकूप लगे हुए हैं। खेतों में तरह-तरह की सब्ज़ी लगी है। सब्ज़ी के लिए अच्छे बीज भी सहकारी समिति ने ही दिए हैं।

इस गाँव के लोग अपना खाली समय बरबाद नहीं करते। उनकी स्त्रियाँ खाली समय में चरखे पर सूत कातती हैं। कुछ लोगों ने पशु पाल रखे हैं। उनका वे पूरा ध्यान रखते हैं। उन्हें अच्छा चारा खिलाते हैं। पशुओं से उन्हें अच्छा दूध और घी मिलता है।

यह देखो, गाँव की पाठशाला आ गई। यहाँ गाँव के बच्चे पढ़ते हैं। इस स्कूल की इमारत गाँववालों ने अपने आप बनाई है। अब यह पाठशाला दिन-प्रतिदिन उन्नति कर रही है। शाम के समय यहाँ कुछ बड़े-बूढ़े भी पढ़ने और रेडियो सुनने आते हैं।

ज़रा गाँव की गलियों को तो देखो ! कितनी साफ़ हैं। सरकारी अधिकारियों की मदद से गाँववालों ने इन पर ईंटें बिछाई हैं और नालियाँ पक्की बना दी हैं। गाँव का हर आदमी अपने गाँव को साफ़ रखने की कोशिश करता है।

आओ, आगे चलें। यह देखो, यह गाँव का पंचायतघर है। शाम के समय यहाँ कभी-कभी भजन-कीर्तन भी होता है। गाँववाले मिलकर यहाँ त्योहार मनाते हैं और नाटक खेलते हैं।

माधोपुर ने थोड़े ही समय में बड़ी उन्नति कर ली है क्योंकि यहाँ सब आपस में

मिलकर काम करते हैं। माधोपुर की तरह देश के अन्य गाँव भी आगे बढ़ रहे हैं।

अब बताओ

1. गाँव कैसे आगे बढ़ सकते हैं ?
2. सहकारी समिति क्या है, सहकारी समिति गाँववालों के लिए क्या करती है ?
3. गाँव में बड़े-बड़े खेत बनाने से गाँववालों को क्या लाभ हैं ?
4. हम यह कैसे कह सकते हैं कि गाँवों की उन्नति देश की उन्नति है ?
5. नीचे कुछ कथन दिए गए हैं। इनमें से जो यह बताते हों कि गाँव आगे बढ़ रहे हैं, उन पर सही (✓) का निशान लगाओ।
   ( ) गाँव में सहकारी समिति काम करती है।
   ( ) गाँव की सड़कें पक्की हैं और नालियाँ साफ़ हैं।
   ( ) गाँव साफ़-सुथरा है।
   ( ) गाँव की पाठशाला में बहुत-से बच्चे पढ़ते हैं।
   ( ) गाँव के पास गंदे पानी का एक तालाब है।
   ( ) गाँव के खेतों में ट्रैक्टर का प्रयोग होता है।

कुछ करने को

1. बाल-सभा में इस पर विचार करो कि 'अपने गाँव को किस प्रकार सुधारा जाए।'
2. मालूम करो कि तुम्हारे गाँव में सहकारी समिति बनी है या नहीं ? यदि बनी है तो वह क्या काम करती है ?

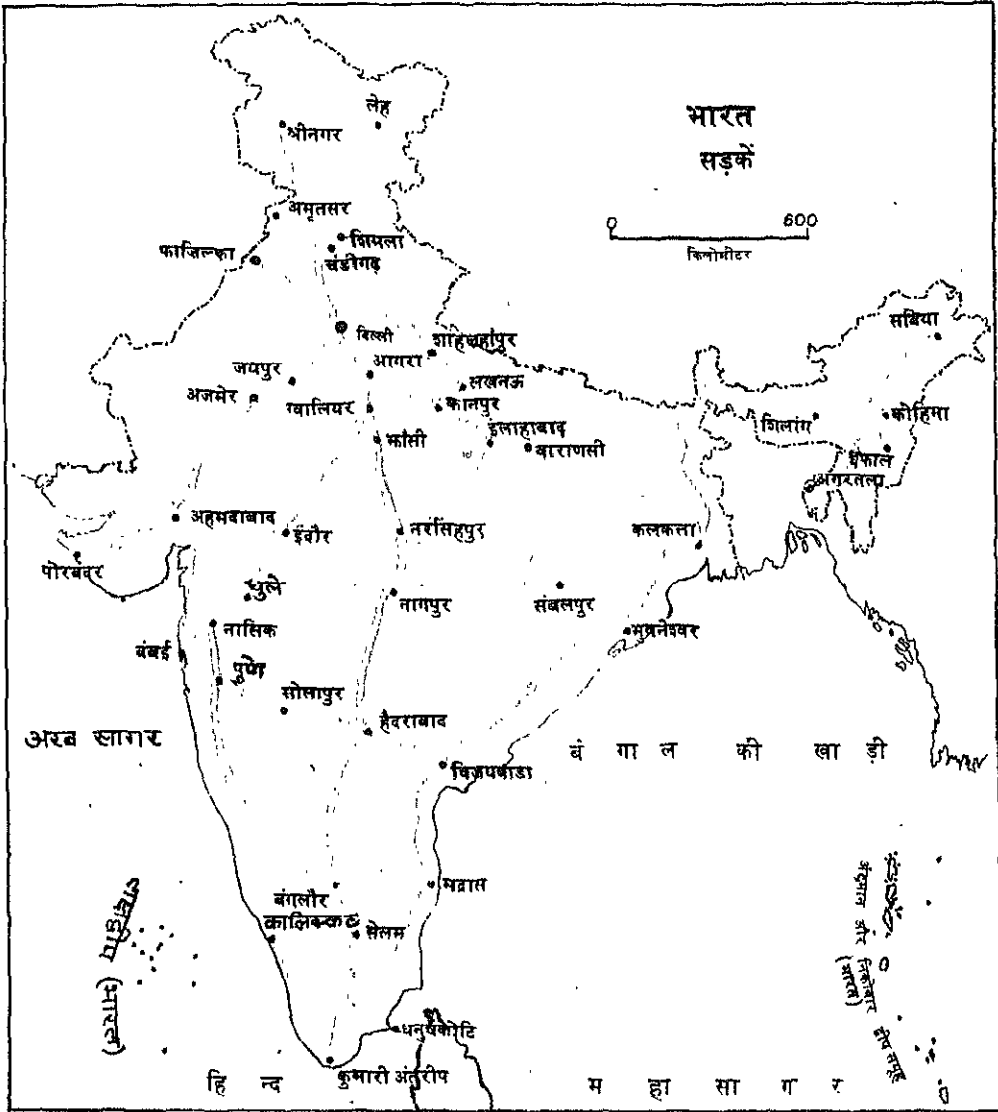
भारत में यातायात

भारत एक विशाल देश है। देश के एक भाग से दूसरे में आने-जाने के लिए हम रेल, मोटर अथवा हवाई जहाज़ द्वारा यात्रा करते हैं। ये ही हमारे यातायात के साधन हैं। अब हम दूर-दूर के स्थानों की यात्रा भी आराम और शीघ्रता के साथ कर सकते हैं। यातायात के विभिन्न साधनों से देश के सभी भाग एक-दूसरे के बहुत निकट आ गए हैं।

ट्रकों और रेलों द्वारा हम चावल, अनाज, फल, सब्ज़ियाँ और अन्य बहुत-सी चीज़ें देश के एक भाग से दूसरे भाग को ले जाते हैं। इन्हींके द्वारा कारखानों के लिए दूर-दूर से कच्चा माल लाया जाता है। कारखानों में बना माल रेल और ट्रक द्वारा मंडियों और बाज़ारों तक पहुँचाया जाता है। तुम देखते हो कि भिलाई के कारखानों में बनी लोहे की चीज़ें तथा डिग्बोई और अंकलेश्वर में निकाला गया तेल सारे देश में प्रयोग होता है। मैसूर के हाथी-दाँत और चंदन की बनी वस्तुएँ देश के किसी भी बड़े शहर में खरीदी जा सकती हैं।

बहुत-से लोग नौकरी, व्यापार, सैर अथवा तीर्थ-यात्रा करने के लिए देश के एक भाग से दूसरे भाग को आते-जाते हैं। इससे लोगों में मेल और एकता की भावना बढ़ती है और वे एक-दूसरे के समीप आते हैं। यही कारण है 'इडली' और 'दोसा' आजकल उत्तरी भारत के लोगों में भी लोकप्रिय हो रहे हैं। देश में सब जगह लोग 'रसगुल्ले' और 'संदेश' चाव से खाते हैं।

आजकल हम चाहे देश के किसी भी भाग में रहते हों, डाक-तार और टेलीफ़ोन की सुविधाओं द्वारा दूर रहनेवाले मित्रों और संबंधियों से हमारा संपर्क बना रहता है। संचार के अन्य साधन जैसे रेडियो, टेलीविज़न और समाचारपत्र हमें देश-विदेश के ताज़ा समाचार देते हैं।

अगले पाठों में तुम अपने देश के रेल-मार्गों, सड़कों और हवाई-मार्गों के विषय में पढ़ोगे। तुम्हें पता चलेगा कि देश में इन मार्गों का जाल-सा बिछा है। तुम यह भी पढ़ोगे कि यातायात और संचार के विभिन्न साधन देश के लोगों में मेल और एकता की भावना पैदा करते हैं। ये देश की उन्नति में भी सहायता देते हैं।

भारत के महासर्वेक्षक की अनुज्ञानुसार भारतीय सर्वेक्षण विभाग के मानचित्र पर आधारित।

समुद्र में भारत का जल प्रदेश उपयुक्त आधार रेखा से मापे गये बारह समुद्री मील की दूरी तक है।

10. हमारी सड़कें

तुम अपने शहर अथवा कस्बे में पक्की सड़कों पर बस, टैक्सी, ट्रक, स्कूटर और दूसरी सवारी-गाड़ियाँ दौड़ती देखते हो। तुम इनमें बैठे भी होगे। आजकल यात्रा कितने

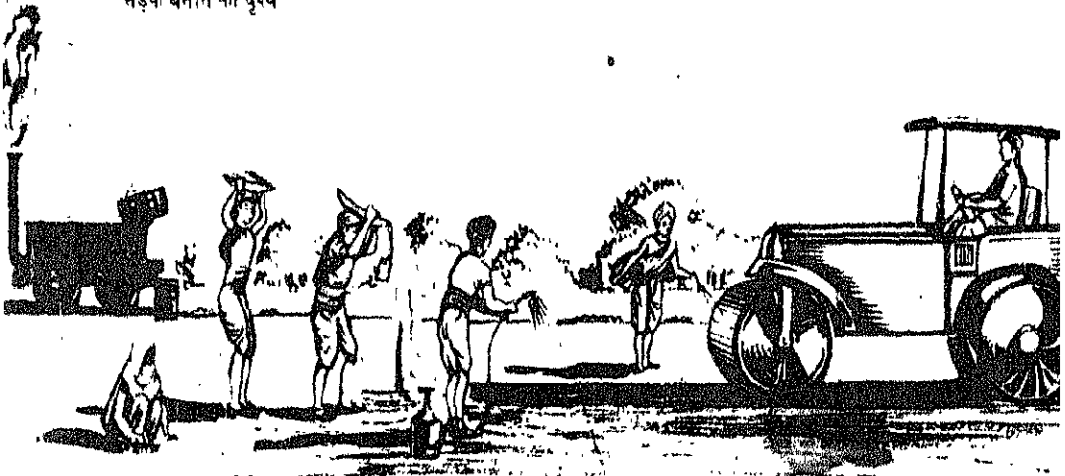
आराम और आनंद से हो जाती है ! मोटर अथवा बस द्वारा हम सैकड़ों किलोमीटर की दूरी थोड़े ही समय में तय कर लेते हैं।

बहुत पुराने समय में लोग पैदल यात्रा करते थे। बोझा ढोने का काम जानवरों से लिया जाता था। नदी के पास रहनेवाले लोग नावों से आया-जाया करते थे। आज भी कुछ स्थानों पर नाव ही आने-जाने का साधन है। नदी के बहाव की उलटी दिशा में जाने में नाव बहुत समय लेती है। कभी-कभी नावें डूब भी जाती हैं। क्या तुम बता सकते हो भारत के किन राज्यों में आजकल भी नावों का काफ़ी प्रयोग होता है ?

आना-जाना आसान करने के लिए मनुष्य ने बैलगाड़ी, घोड़ागाड़ी आदि का प्रयोग शुरू किया। इन गाड़ियों के लिए सड़कें भी बनाईं। ये सड़कें कच्ची और सँकरी थीं। वर्षा के दिनों में ये काम में नहीं आ सकती थीं। क्या तुम इसका कारण बता सकते हो ?

धीरे-धीरे गाड़ियों में सुधार हुआ। उनकी गति बढ़ी। सड़कें चौड़ी बनाई जाने लगीं। पुराने समय में हमारे कुछ राजाओं को सड़कें बनवाने का बड़ा शौक था। सम्राट अशोक के विषय में तुम पढ़ चुके हो। उसने यात्रियों की सुविधा के लिए सड़कें बनवाईं। उनके दोनों ओर छायादार पेड़ लगवाए और धर्मशालाएँ बनवाईं। शेरशाह नाम के बादशाह ने एक लंबी सड़क बनवाई। यह सड़क अब ग्रांड ट्रंक रोड के नाम से प्रसिद्ध है। यह सड़क अमृतसर से कलकत्ता तक जाती है।

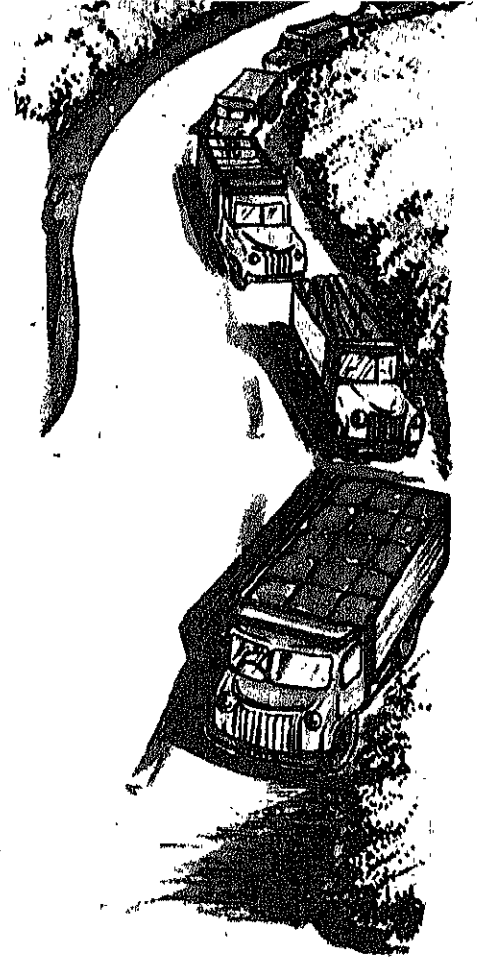
पैट्रोल का प्रयोग करने वाली गाड़ियों का चलना आज से लगभग सौ वर्ष पहले आरंभ हुआ। इनकी गिनती दिन-पर-दिन बढ़ने लगी। इनकी गति भी तेज़ थी। इसके लिए सड़कों में सुधार की ज़रूरत हुई। सड़कों को पक्का बनाने के लिए ईंटों अथवा पत्थरों को काम में लाया गया। बाद में पत्थर के छोटे-छोटे टुकड़ों को तारकोल अथवा सीमेण्ट में मिलाकर सड़कें बनाई जाने लगीं। ऐसी ही सड़कें तुम आज अपने शहर में देखते हो।

सड़क बनाने का दृश्य

मार्ग में आनेवाले नदी-नालों पर पुल बनाए जाते हैं। आजकल हम बरसात के दिनों में भी आसानी से यात्रा कर सकते हैं।

तेज़ रफ़्तारवाली गाड़ियों की वजह से आजकल आना-जाना आसान हो गया है। लोग व्यापार के लिए दूर-दूर जाते हैं। दिल्ली, कलकत्ता और बंबई जैसे बड़े शहरों में लोग अपने दफ़्तरों, कारखानों आदि को जाने के लिए कई किलोमीटर तक मोटर या बस की यात्रा करते हैं। सड़कों पर हज़ारों ट्रक दिन-रात दौड़ते हैं। ये तुम्हारे लिए कश्मीर से सेब, नागपुर से संतरे, इलाहाबाद से अमरूद, देहरादून से लीची आदि लाते हैं। इसी प्रकार ट्रक खेतों से गन्ना, कपास, तिलहन आदि कारखानों तक पहुँचाते हैं। ये कारखानों की बनी वस्तुओं को भी मंडियों और बाज़ारों तक लाते हैं।

ट्रकों द्वारा माल ढोना

कलकत्ता, बंबई, दिल्ली, मद्रास जैसे बड़े-बड़े नगरों को जोड़नेवाली सड़कों का सारे देश में जाल-सा बिछा हुआ है। देश के भिन्न-भिन्न भागों को मिलानेवाली कई बड़ी सड़कें हैं। इन्हें राष्ट्रीय मार्ग कहते हैं। पृष्ठ 57 पर मानचित्र में देखो। एक सड़क अमृतसर से दिल्ली, कानपुर, इलाहाबाद, वाराणसी होती हुई कलकत्ता तक गई है। यही ग्रांड ट्रंक सड़क है। एक दूसरी सड़क बंबई से नासिक, इंदौर, ग्वालियर, आगरा, दिल्ली होती हुई अमृतसर जाती है। एक और सड़क बंबई से पूना, बंगलौर होकर मद्रास गई है। समुद्र के किनारे-किनारे कलकत्ता से मद्रास तक जानेवाली एक लंबी सड़क है। इसी प्रकार और भी कई राष्ट्रीय मार्ग हैं। इन्हें भी तुम मानचित्र में ढूँढ़ो।

मानचित्र में ध्यान से देखने पर तुम्हें यह भी पता चलेगा कि राष्ट्रीय मार्गों के अतिरिक्त प्रत्येक राज्य में कई सड़कें हैं। ये राज्य के बड़े-बड़े नगरों को आपस में मिलाती हैं। इन्हें राज्य मार्ग कहते हैं। कुछ राज्य मार्ग राष्ट्रीय मार्गों से आकर मिलते हैं। इन राज्य मार्गों पर पड़नेवाले नगरों और मंडियों को छोटी सड़कों द्वारा गाँवों से जोड़ा गया है। इससे गाँव में पैदा होनेवाले अनाज, फल, सब्ज़ियाँ आदि आसानी से मंडियों में

भेजे जा सकते हैं।

हमारे देश में अधिक सड़कों की ज़रूरत है। पंचवर्षीय योजनाओं में बहुत-सी नई सड़कें बन रही हैं। रेतीले, दलदली और पहाड़ी मार्गों में भी सड़कें बनाई जा रही हैं। यहाँ तक कि अब तो हिमालय के ऊँचे पहाड़ी प्रदेशों में भी सड़कें बन गई हैं।

तुम सोचते होगे कि अधिक सड़कों के होने से क्या लाभ होगा। लोगों को आने-जाने में तो सुविधा होगी ही, हमारे कारखानों के लिए दूर-दूर से आनेवाला कच्चा माल जल्दी आ सकेगा। इसी प्रकार कारखानों में बना माल नगरों और गाँवों में पहुँच सकेगा। अच्छी सड़कों से एक बड़ा लाभ यह भी होता है कि युद्ध के समय हमारी सेनाएँ और लड़ाई का सामान आसानी से एक जगह से दूसरी जगह पहुँचाया जा सकता है।

अब बताओ

1. अच्छी सड़कों से हमें उद्योग और व्यापार में क्या सहायता मिलती है ?
2. देश की सुरक्षा के लिए अच्छी सड़कों का होना क्यों आवश्यक है ?
3. पक्की सड़कें कैसे बनाई जाती हैं ?
4. तेज़ चलनेवाली सवारी-गाड़ियों के लिए अच्छी और चौड़ी सड़कों की ज़रूरत क्यों होती है ?

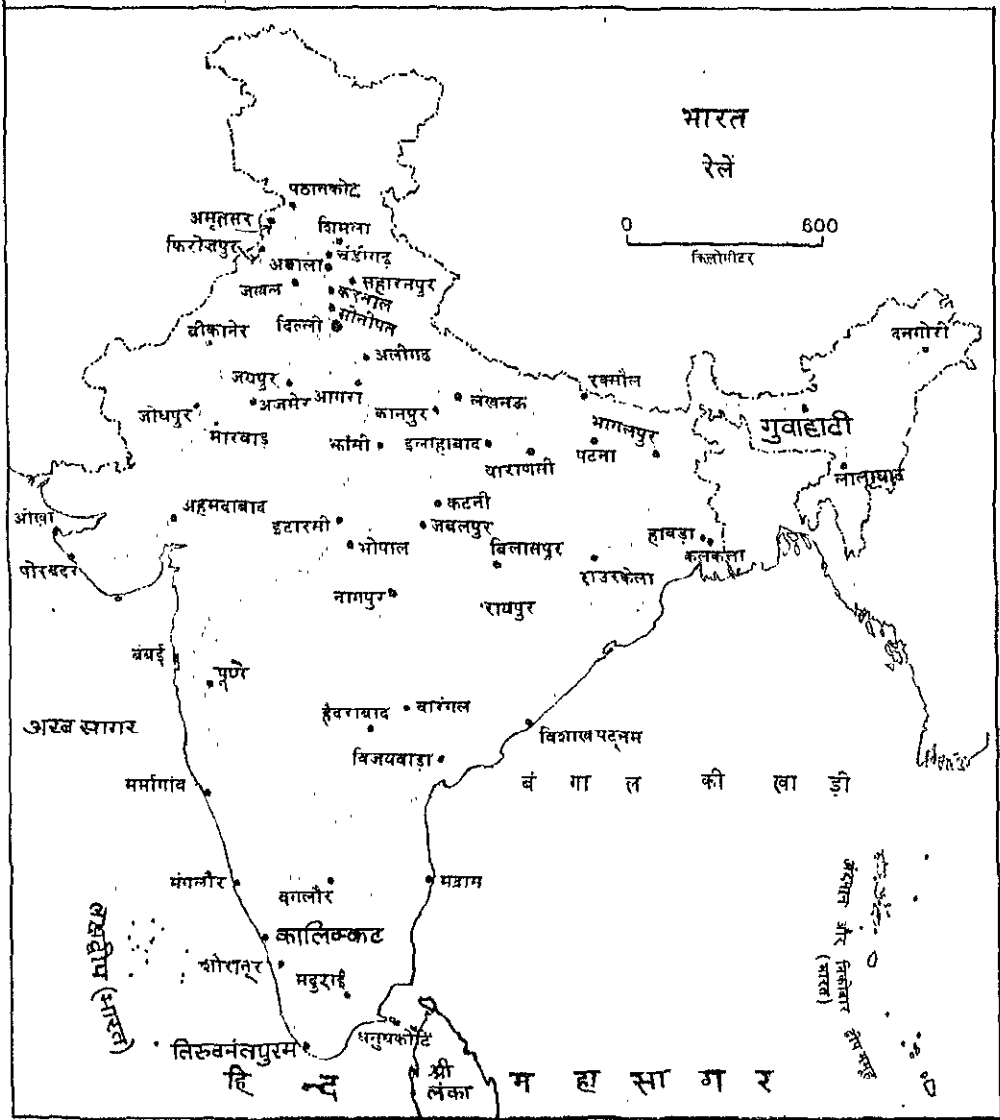
कुछ करने को

1. मानचित्र में देखकर उन राज्यों की एक सूची बनाओ जिनमें से नीचे लिखे राष्ट्रीय मार्ग जाते हैं :

   (क) बंबई से अमृतसर (ख) अमृतसर से कलकत्ता

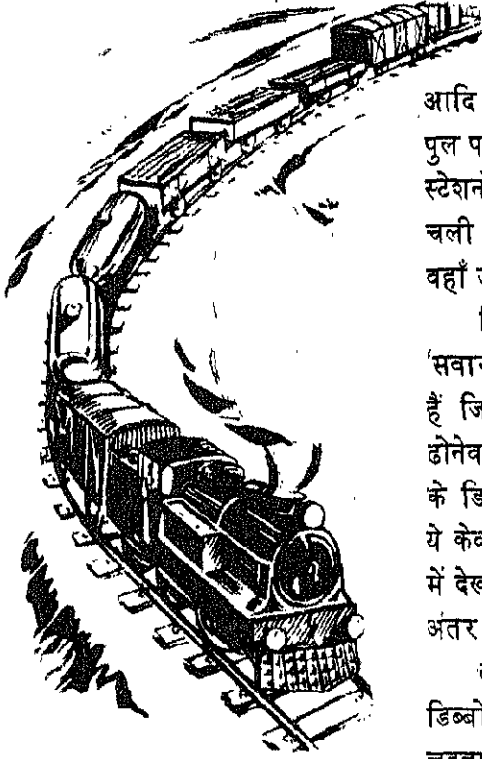
   (ग) बंबई से कलकत्ता (घ) दिल्ली से मद्रास

2. मानचित्र में देखकर बताओ कि नीचे लिखे स्थानों से बस द्वारा जाने में कौन-कौन-से प्रसिद्ध नगर मिलेंगे :

   (क) कलकत्ता से मद्रास (ख) मद्रास से बंबई

भारत के महासर्वेक्षक की अनुज्ञानुसार भारतीय सर्वेक्षण विभाग के मानचित्र पर आधारित।

समुद्र में भारत का जल प्रदेश उपयुक्त आधार रेखा से मापे गये बारह समुद्री मील की दूरी तक है।

11. हमारी रेलें

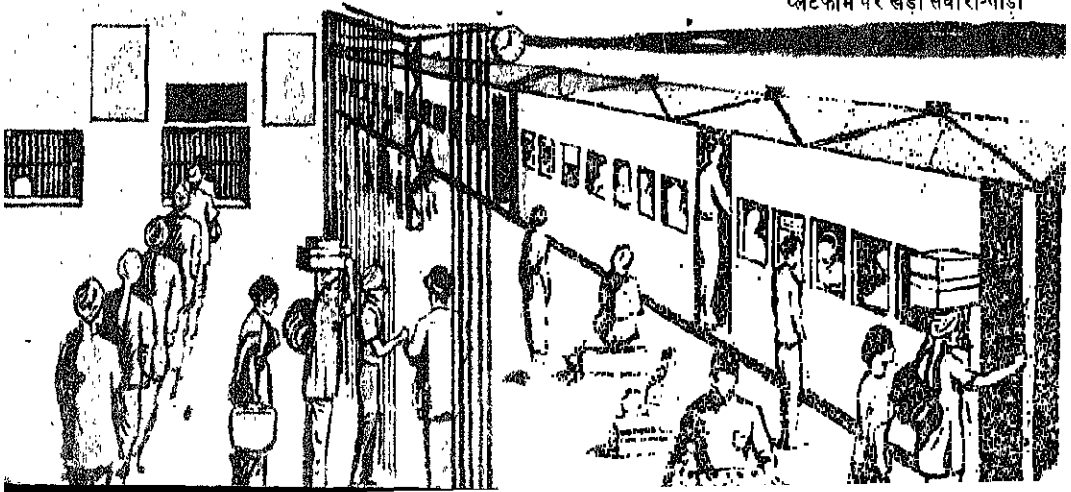
तुमने रेलगाड़ी में यात्रा की होगी। पहले अपना सामान बाँधकर तुम स्टेशन पहुँचते हो। वहाँ टिकट घर की खिड़की से उस स्थान का टिकट खरीदते हो जहाँ तुम्हें जाना होता है। फिर कुली से सामान उठवाकर जा बैठते हो डिब्बे में। समय होने पर रेलगाड़ी चल देती है। रास्ते में तुम्हें हरे-भरे खेत, छोटे-बड़े गाँव, पहाड़ियाँ, नदी-नाले, जंगल

मालगाड़ी

आदि देखने को मिलते हैं। रेलगाड़ी कभी नदी का पुल पार करती है और कभी पहाड़ी सुरंग। छोटे-बड़े स्टेशनों पर रुकती हुई वह अपनी पटरी पर दौड़ती चली जाती है। फिर आता है तुम्हारा स्टेशन। तुम वहाँ उतर जाते हो और गाड़ी आगे बढ़ जाती है।

जिस रेलगाड़ी से हम लोग यात्रा करते हैं उसे 'सवारी-गाड़ी' कहते हैं। कुछ ऐसी रेलगाड़ियाँ भी हैं जिनसे केवल सामान भेजा जाता है। सामान ढोनेवाली गाड़ी को 'मालगाड़ी' कहते हैं। मालगाड़ी के डिब्बे सवारी-गाड़ी के डिब्बों से भिन्न होते हैं। ये केवल सामान ढोने के लिए बनाए जाते हैं। चित्रों में देखकर सवारी-गाड़ी और मालगाड़ी के डिब्बों का अंतर पता करो।

तुम कभी स्टेशन पर जाकर देखो, मालगाड़ी के डिब्बों से तुम्हें तरह-तरह का सामान उतरता और चढ़ता दिखाई देगा। किसी डिब्बे में कपड़े की गाँठें या बिजली के पंखे दिखाई देंगे तो दूसरे में काजू की बोरियाँ, चाय की पेटियाँ, वनस्पति घी के डिब्बे आदि। मालगाड़ियाँ विभिन्न प्रकार का सामान एक जगह से दूसरी जगह ले जाती हैं। प्रतिदिन हज़ारों टन कोयला, लोहा और दूसरा कच्चा माल वे कारखानों में ले जाती हैं और वहाँ पर बनी हुई चीजें देश के कोने-कोने में पहुँचाती हैं।

पृष्ठ 61 पर मानचित्र में देखो, देश में रेलों का जाल बिछा हुआ है। इनके द्वारा सैकड़ों गाँव, छोटे-बड़े नगर और बंदरगाह जुड़े हुए हैं। मानचित्र में कुछ बड़े-बड़े रेलमार्ग

प्लेटफार्म पर खड़ी सवारी-गाड़ी

डिलक्स गाड़ी का डिब्बा--भीतर से

देखो। एक रेलमार्ग बंबई से दिल्ली होता हुआ अमृतसर जाता है। एक रेलमार्ग दिल्ली से कानपुर, इलाहाबाद, पटना होता हुआ कलकत्ता जाता है। एक दूसरा रेलमार्ग दिल्ली से नागपुर, विजयवाड़ा होता हुआ मद्रास गया है। एक और रेलमार्ग मद्रास से कलकत्ता जाता है। दिल्ली से अजमेर, अहमदाबाद होता हुआ भी एक रेलमार्ग बंबई पहुँचता है। इसी प्रकार पठानकोट से सहारनपुर और वाराणसी होता हुआ एक अन्य रेलमार्ग भी कलकत्ता जाता है।

पहाड़ी भागों में रेलमार्ग कम हैं। क्या तुम बता सकते हो ऐसा क्यों है? पहाड़ों को काटकर रेल की पटरी बिछाना कठिन और महँगा काम है। तब भी कहीं-कहीं पहाड़ों पर रेलमार्ग बनाए गए हैं। ऐसा ही एक रेलमार्ग कालका और शिमला के बीच बनाया गया है। यहाँ चलनेवाली छोटी-सी रेलगाड़ी से यात्रा करने में बड़ा आनंद आता है।

इतने रेलमार्ग होते हुए भी ये हमारी आवश्यकताओं से बहुत कम हैं। हमारी पंच-वर्षीय योजनाओं में रेलमार्ग बढ़ाने का काम भी हो रहा है। नए-नए रेलमार्ग बनाए जा रहे हैं। यात्रियों को सुविधा देने के लिए रेलगाड़ियों में सुधार किए जा रहे हैं। तुमने देखा होगा कि दूसरे दर्जे के डिब्बों में भी अब अच्छी सीटें और पंखे लगाए गए हैं। दूसरे दर्जे के यात्री भी आजकल रात की यात्रा के लिए सोने के स्थान का आरक्षण करा सकते हैं।

रेलें देश की रक्षा के लिए भी बहुत आवश्यक हैं। हमारा देश बहुत विशाल है। सब जगह सेना रखना बहुत कठिन है। युद्ध के समय रेलों द्वारा जहाँ सेना की आवश्यकता होती है वहाँ सेना और जरूरी सामान शीघ्र ही पहुँचाया जा सकता है। अकाल के समय में भी रेलें हमारे लिए बहुत आवश्यक हैं। ये देश के अन्य भागों से अनाज और खाने की दूसरी वस्तुएँ अकाल-पीड़ित भागों में पहुँचाती हैं।

रेलों की कहानी हमारे देश में बहुत पुरानी नहीं है। सौ वर्ष से कुछ अधिक समय हुआ, बंबई और थाना के बीच सबसे पहली रेल चली थी। यह दूरी लगभग 34 किलोमीटर है। इस गाड़ी की चाल लगभग 25 किलोमीटर प्रति घंटा थी। अब तो रेलगाड़ी लगभग 80 किलोमीटर प्रति घंटे की चाल से चलती हैं। बिजली और डीज़ल से चलनेवाली नई गाड़ियों की चाल तो 100 किलोमीटर से भी अधिक है।

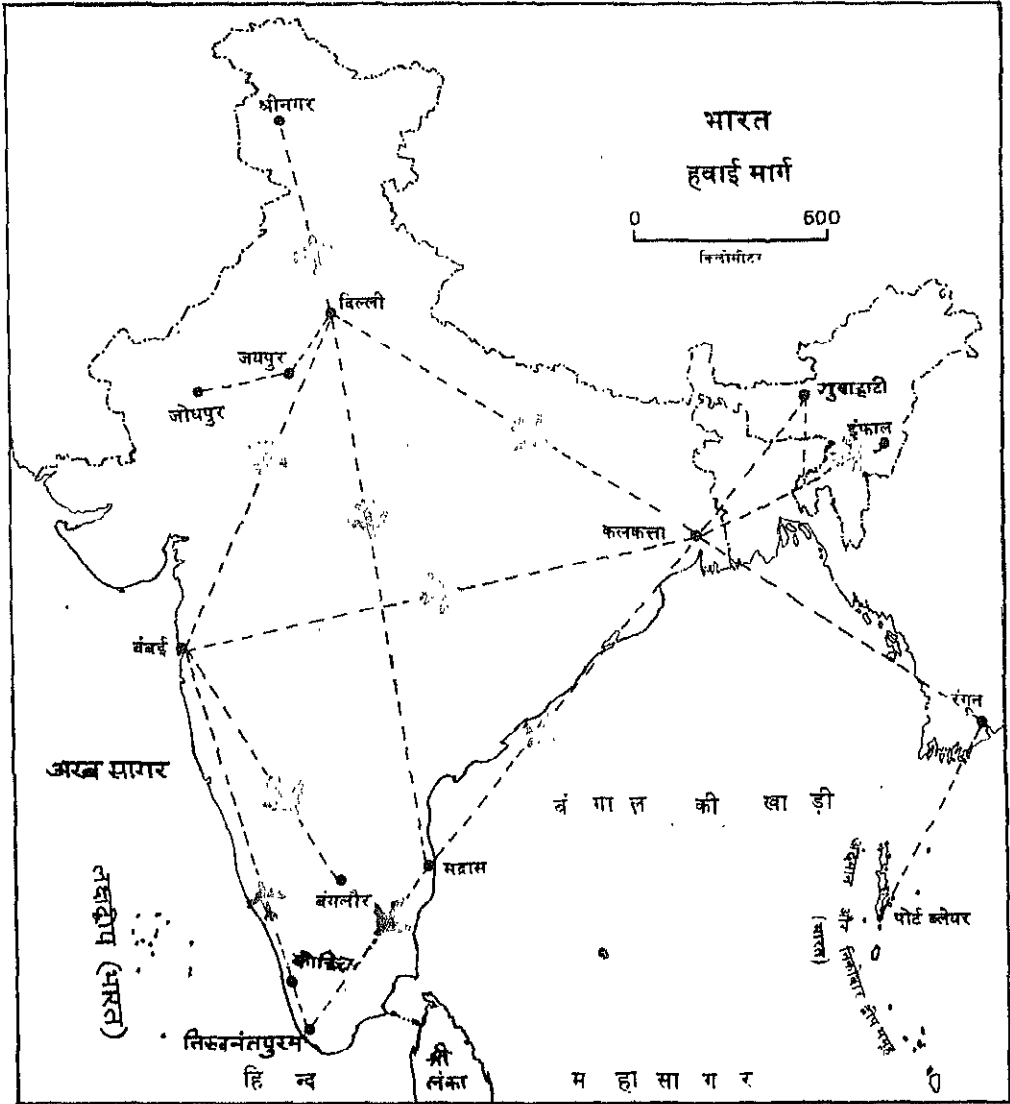
रेलों से देश के सभी भाग अब एक-दूसरे के निकट आ गए हैं। हम आसानी से देश के एक स्थान से दूसरे स्थान जा सकते हैं और एक-दूसरे से मिल सकते हैं। इससे भिन्न-भिन्न राज्यों के लोगों में मेलजोल और एकता बढ़ गई है। लोगों के भोजन, पहनावे, रीति-रिवाज और रहन-सहन पर भी इसका प्रभाव पड़ा है।

रेलें हमारी सेवा करती हैं। ये हमारी राष्ट्रीय संपत्ति हैं। हम सबका कर्तव्य है कि हम अपनी इस संपत्ति की देखभाल करें और इसे किसी भी प्रकार की हानि न पहुँचाएँ।

अब बताओ

1. रेलें हमारे लिए क्यों आवश्यक हैं ?
2. यदि तुम्हें दिल्ली से मद्रास जाना हो, तो बस में जाओगे या रेल में ? क्यों ?
3. रेलगाड़ी में यात्रा करते हुए तुम क्या-क्या सावधानी रखोगे ?
4. रेल में यात्रा करना तुम्हें कैसा लगता है ? क्यों ?
5. नीचे कुछ कथन दिए गए हैं। इनमें से जो रेलों के लिए सही हों उन पर (✓) निशान लगाओ :
   - (   ) रेलें देश की सुरक्षा के लिए आवश्यक हैं।
   - (   ) रेलें पहाड़ों पर जाने का बड़ा साधन हैं।
   - (   ) रेलें हमारी राष्ट्रीय संपत्ति हैं।
   - (   ) रेलें कारखानों को कच्चा माल पहुँचाने का एकमात्र साधन हैं।
   - (   ) रेलें अकाल के समय हमारे बहुत काम आती हैं।

कुछ करने को

1. मानचित्र में देखकर बताओ कि यदि रेल द्वारा नीचे लिखी यात्राएँ करें तो हमें किन राज्यों से होकर जाना पड़ेगा :
   - (क) कलकत्ता से मद्रास।
   - (ख) मैसूर से दिल्ली।
   - (ग) अमृतसर से कलकत्ता।
   - (घ) दिल्ली से बंबई।
2. अपने अध्यापकजी से पूछो कि रेलें और सड़कें हमारे भोजन, पहनावे रीति-रिवाज और रहन-सहन को बदलने में कैसे सहायता देती हैं।

समुद्र में भारत का जल प्रदेश उपयुक्त आधार रेखा से मापे गये बारह समुद्री मील की दूरी तक है।
भारत के महासर्वेक्षक की अनुज्ञानुसार भारतीय सर्वेक्षण विभाग के मानचित्र पर आधारित।

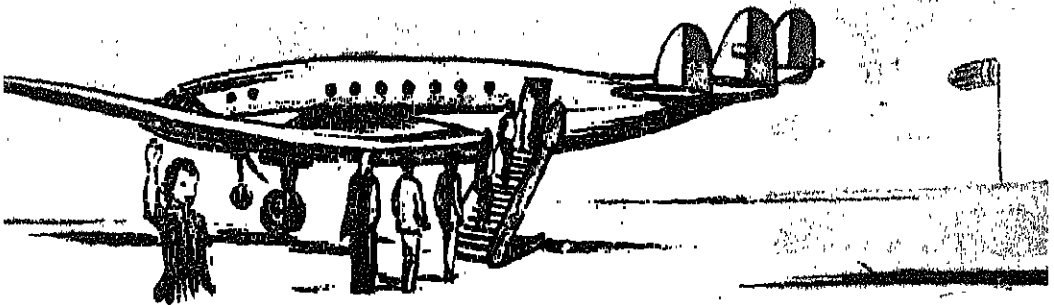
12. हमारे हवाई मार्ग

आकाश में उड़ता हवाई जहाज़ तो तुमने देखा ही होगा। ऐसा भी हो सकता है कि तुममें से कोई उसमें बैठा भी हो। हवाई जहाज़ में बैठना तो तुम सभी चाहते होगे।

यह अंदर से कैसा होता है ? कैसा लगता है इसमें बैठकर आसमान में उड़ना ? यह कितना तेज़ चलता है ? ऐसी सभी बातें भी तुम अवश्य जानना चाहोगे। इस जानकारी के लिए अब तुम रमेश से उसकी हवाई जहाज़ की यात्रा की कहानी सुनो। वह अपने पिताजी के साथ दिल्ली से मद्रास गया था :

"मैं पिछली गर्मी की छुट्टियों में पिताजी के साथ हवाई जहाज़ से मद्रास गया था। केवल एक दिन बाकी था। हम बारह घंटे के अंदर ही वहाँ पहुँच जाना चाहते थे। रेल से जाने में दो दिन लगते। इसलिए पिताजी ने हवाई जहाज़ से जाना निश्चित किया। यह जानकर मैं तो बहुत खुश हुआ। मेरी तो यह पहली हवाई यात्रा थी।

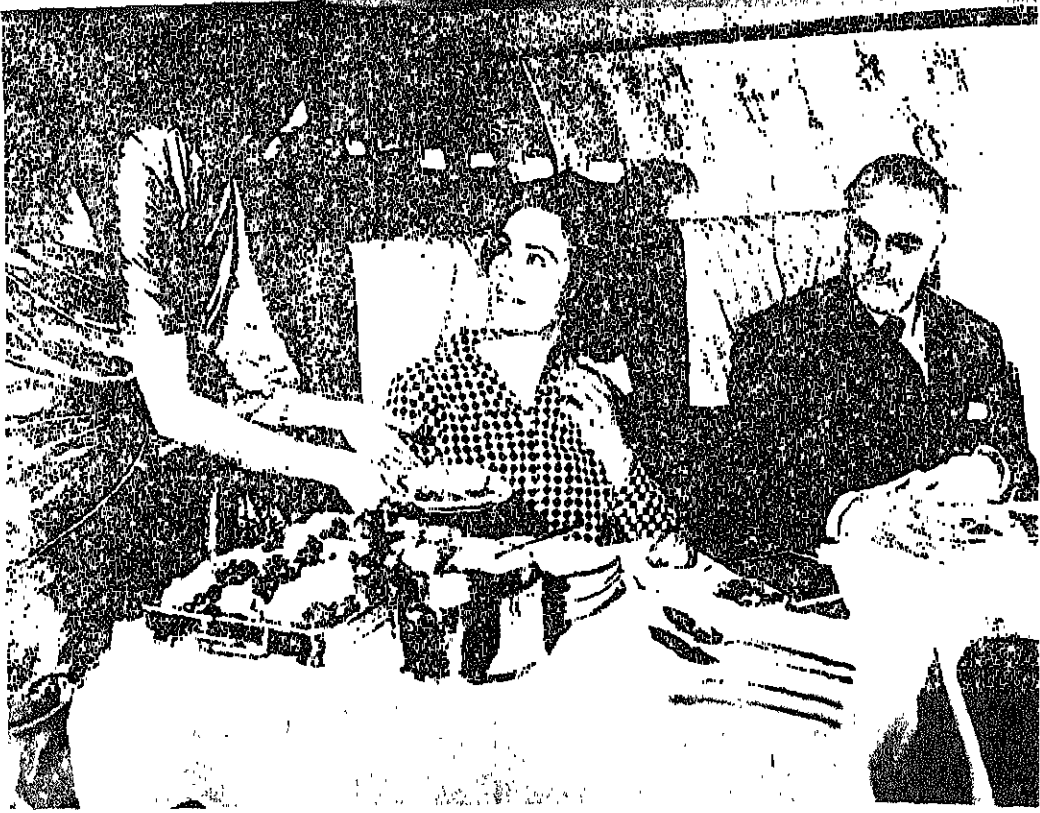
"हमारा हवाई जहाज पालम हवाई अड्डे से सुबह 10 बजे चलने वाला था। हम टैक्सी में बैठकर पालम पहुँच गए। अपना सामान तुलवाया। प्रत्येक यात्री केवल बीस किलोग्राम सामान साथ में ले जा सकता था। हमारा सामान तो इससे कम ही था। थोड़ी देर में पालम अड्डे के एक कर्मचारी ने लाउड स्पीकर पर हमें सूचना दी, 'मद्रास जानेवाले हवाई जहाज के उड़ने का समय हो गया है, मद्रास जानेवाले यात्री हवाई जहाज़ में जाकर बैठें।' हम अन्य यात्रियों के साथ तुरंत हवाई जहाज़ के निकट पहुँच गए। उसके दरवाज़े पर एक सीढ़ी लगी थी। इस सीढ़ी पर चढ़कर हम हवाई जहाज़ के अंदर गए। अंदर गद्देदार सीटों की दो कतारें थीं। बीच में रास्ता था। कुल सीटें लगभग 70 रही होंगी। यह हवाई जहाज़ बहुत बड़ा नहीं था। पिताजी ने मुझे बताया था कि आजकल तो संसार के कुछ बड़े हवाई जहाजों में 300 व्यक्ति भी यात्रा कर सकते हैं।

"मुझे खिड़की के पासवाली सीट मिली। सब सवारियों के अंदर आ जाने के बाद जहाज का दरवाजा बंद हो गया और सीढ़ी हटा दी गई। एक महिला कर्मचारी ने तभी सबको कुछ लैमन की गोलियाँ और लौंग, इलायची दिया। उसने मुझसे कहा कि मैं गोली चूसता रहूँ। अब जहाज़ के इंजन चलने लगे, पहले धीरे, फिर ज़ोर से। शोर बढ़ता गया।

आकाश में उड़ता हुआ एअर इंडिया का हवाई जहाज़

जहाज़ सीमेण्ट की चौड़ी सड़क पर धीरे-धीरे बढ़ने लगा। फिर उसकी चाल तेज़ हुई और वह दौड़ने लगा। इंजन ज़ोर से गरजने लगे और पलक झपकते ही ऐसा लगा कि जहाज़ ज़मीन छोड़ हवा में उड़ रहा है।

"मुझे अब खिड़की से नीचे की चीज़ें दिखाई देने लगीं। दूर तक मकान दिखाई दे रहे थे, सड़कों पर चलती मोटरें भी, परंतु धीरे-धीरे सब वस्तुएँ छोटी होती गईं। खेत और नदी-नाले भी शीघ्र ही बहुत छोटे दिखाई देने लगे। तभी जहाज़ के अगले भाग में बैठे चालक ने बताया कि अब हम 6000–8000 मीटर की ऊँचाई पर उड़ रहे हैं और जहाज की रफ़्तार 500 किलोमीटर प्रति घंटा है। मेरे पूछने पर पिताजी ने बताया कि हमारा जहाज़ बहुत तेज़ उड़नेवाला नहीं है। आजकल कुछ जहाज़ तो 800किलोमीटर प्रति घंटा से भी अधिक चाल से उड़ते हैं।

"दो घंटे में हमारा हवाई जहाज़ हैदराबाद के हवाई अड्डे पर पहुँच गया। यहाँ इसे 40 मिनट रुकना था। कुछ यात्री यहाँ उतर गए और नए सवार हुए। हवाई जहाज़ के दो-तीन कर्मचारियों ने हमें अपनी सीट पर ही भोजन लाकर दिया। भोजन का प्रबंध हवाई जहाज़ के अंदर ही होता है।

"हैदराबाद से चलकर लगभग एक घंटे में हवाई जहाज़ मद्रास पहुँच गया। लगभग चार घंटे में हम दिल्ली से मद्रास पहुँच गए और शाम को अपने संबंधी की शादी में भाग ले सके।"

हवाई जहाज में विमान परिचारिका यात्रियों को भोजन परोसती हुई

हवाई जहाज द्वारा रमेश ने अपनी यात्रा लगभग 4 घंटे में पूरी कर ली। हमारे देश में अभी अधिक जहाज़ नहीं हैं। हवाई अड्डे भी थोड़े ही स्थानों पर हैं। हवाई जहाज़ से यात्रा करने में किराया अधिक लगता है।

पृष्ठ 65 पर मानचित्र में देखो। दिल्ली, कलकत्ता, मद्रास और बंबई में हमारे बड़े हवाई अड्डे हैं। यहाँ पर विदेशों से हवाई जहाज आते-जाते हैं। इसके अलावा देश में और भी हवाई अड्डे हैं। ये छोटे हैं। इनसे देश के भिन्न-भिन्न भागों को हवाई जहाज आते-जाते हैं। बंबई, कलकत्ता, वाराणसी, लखनऊ, हैदराबाद, मद्रास, बंगलौर, पूना आदि बड़े-बड़े नगर हवाई मार्गों द्वारा मिले हुए हैं। इसी प्रकार दिल्ली से श्रीनगर और जोधपुर को भी हवाई जहाज आते-जाते हैं। तुमने पढ़ा है कि अंडमान और निकोबार द्वीप-समूह भारत के भाग हैं। हम हवाई जहाज़ द्वारा यहाँ की राजधानी पोर्ट-ब्लेयर जा सकते हैं। हवाई जहाज़ द्वारा जल्दी खराब हो जाने वाली चीज़ें और फल दूर-दूर भेजे जाते हैं। जिन नगरों में हवाई अड्डे हैं, वहाँ की डाक हवाई जहाज़ से भी भेजी जाती है।

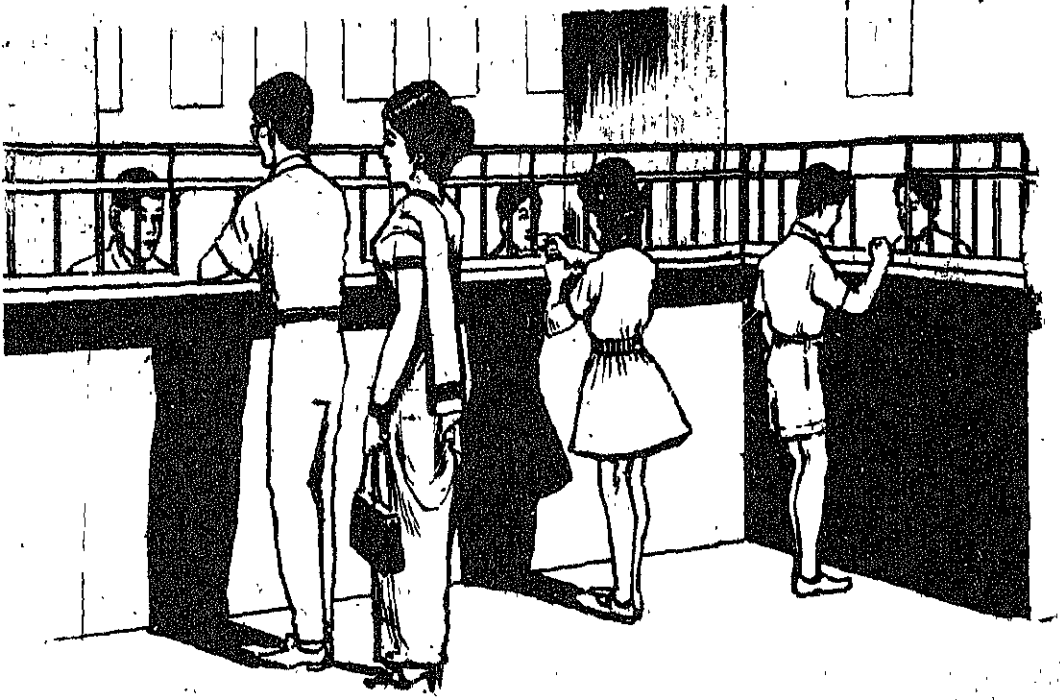
यातायात का यह साधन महँगा है, परंतु युद्ध के समय में इसका बहुत महत्त्व है। तुमने सुना होगा कि 1965 में पाकिस्तान से हुए युद्ध में हमारे देश के हवाई जहाज़ों ने कितना काम किया। लड़ाई का सामान और सेना के जवान हवाई जहाजों द्वारा तुरंत युद्ध के स्थानों पर पहुँचाए गए। हमारे हवाबाज़ों ने तो शत्रु के छक्के ही छुड़ा दिए।

हवाई जहाज़ों की बढ़ती माँग को पूरा करने के लिए देश में हवाई जहाज़ बनाए जाने लगे हैं। बंगलौर और कानपुर में हवाई जहाज़ बनाने के कारखाने हैं।

अब बताओ

1. हवाई जहाज़ हमारी क्या सेवा करते हैं?
2. हवाई जहाज के लिए सड़कें और पटरी नहीं बनानी पड़तीं, फिर भी यातायात का यह साधन महँगा क्यों है?
3. देश की रक्षा के लिए हवाई जहाज़ क्यों ज़रूरी हैं?
4. हवाई जहाज से यात्रा करने में क्यों आनंद आता है?
5. तुम रेल, बस, ट्रक और हवाई जहाज में से यातायात के किस साधन का प्रयोग करोगे, यदि तुम्हें :
   ( ) अपने कारखाने के लिए हज़ारों क्विंटल कोयला खान से मँगाना है।
   ( ) कल ही श्रीनगर पहुँचना है।
   ( ) आस-पास से बेचने के लिए सब्ज़ियाँ मँगानी हैं।
   ( ) किसी मरीज के लिए एक बहुत ज़रूरी दवाई बंबई से गौहाटी भेजनी है।
   ( ) अपने नगर में घर बदलते समय घर का सामान भेजना है।
   ( ) भारत के विभिन्न भागों में तीर्थस्थानों की यात्रा करनी है।

कुछ करने को

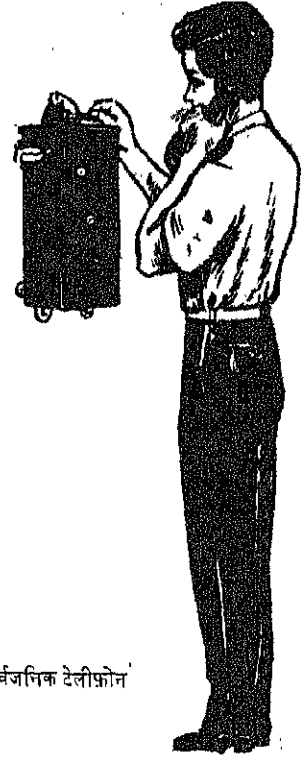
1. अपने अध्यापक से हवाई जहाज़ के आविष्कार की कहानी सुनो।
2. दिल्ली से मद्रास जाने के लिए रेल और हवाई जहाज़ का किराया मालूम करो।

डाक-घर

13. संचार के साधन

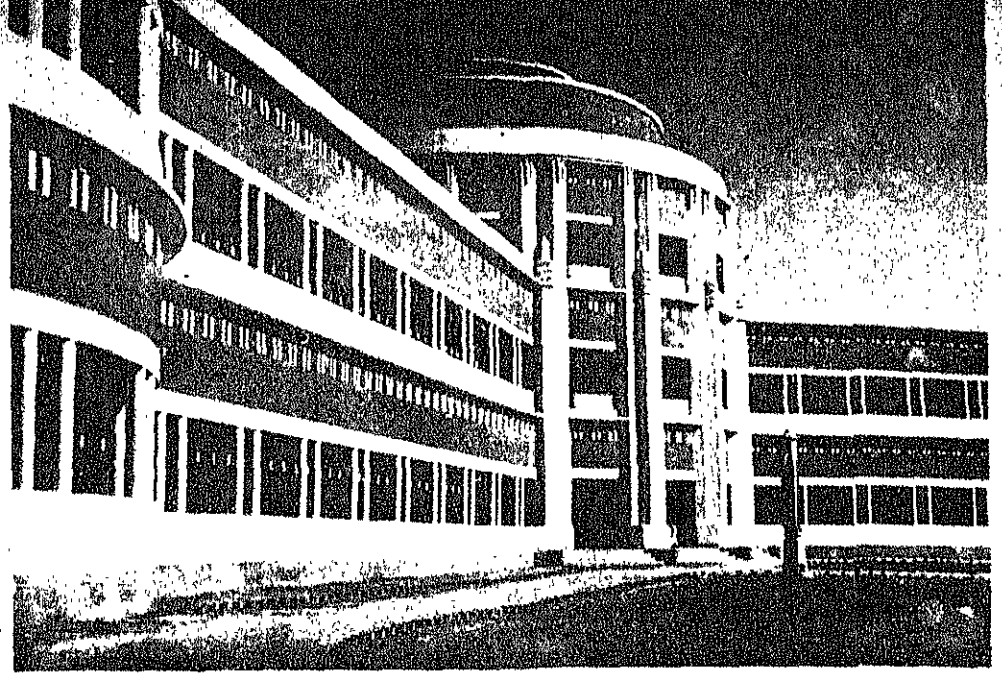
बच्चो ! तुम घर में माता-पिता, भाई-बहिन आदि के साथ रहते हो। तुम उनसे कई चीज़ों के बारे में बातचीत करते हो। स्कूल में तुम अपने मित्रों के साथ बातचीत करते हो। इस प्रकार की सीधी बातचीत तभी संभव है जब तुम एक-दूसरे के आमने-सामने होते हो। ज़रा बताओ कि दूर रहनेवाले संबंधियों और मित्रों से तुम किस प्रकार बातचीत करोगे।

प्राचीन समय में दूर रहनेवाले व्यक्ति से बातचीत करना कठिन होता था, लेकिन आज हम एक पोस्ट-कार्ड लिखकर दूर रहनेवाले किसी भी व्यक्ति को अपना समाचार भेज सकते हैं। पोस्ट-कार्ड केवल 15 पैसे में आता है। यह पूरे देश में कहीं भी भेजा जा सकता है। पोस्ट-कार्ड रेल और मोटर द्वारा तो भेजे ही जाते हैं, हवाई जहाज़ों से भी ले जाए जाते हैं। यदि तुम पत्र में अधिक बातें लिखना चाहते हो, या कोई निजी संदेश भेजना चाहते हो, तो 'अंतर्देशीय पत्र' या 'लिफाफा' काम में ला सकते हो। अंतर्देशीय पत्र 20 पैसे का और लिफाफा 25 पैसे का आता है। हमारे लिए इस प्रकार की डाक-सेवा का प्रबंध भारत सरकार का डाक-तार विभाग करता है।

पोस्ट-कार्ड, अंतर्देशीय-पत्र, लिफाफे और डाक-टिकट बेचने के अतिरिक्त डाक-तार विभाग हमारी और भी कई तरह से सेवाएँ करता है।

यदि तुम अपने किसी मित्र, संबंधी, पुस्तक-विक्रेता आदि को रुपया भेजना चाहो तो तुम डाक-घर की सहायता ले सकते हो। डाक द्वारा रुपया भेजने के लिए एक मनीआर्डर फार्म भरना पड़ता है। यह मनीआर्डर फार्म और रुपया अपने शहर के डाक-घर को दे दो। डाक विभाग मनीआर्डर भेजने के लिए कुछ शुल्क लेगा और रुपए को दिए गए पते के अनुसार ठीक आदमी तक पहुँचा देगा। डाक द्वारा रुपया भेजने का एक और भी तरीका है। मान लो तुम सौ रुपए अपने मित्र को भेजना चाहते हो। किसी भी डाक-घर से सौ रुपए के पोस्टल आर्डर खरीद लो। इस पर अपने मित्र का नाम और पता लिखो और इसे लिफाफे में बंद करके डाक द्वारा उसके पास भेज दो। तुम्हारा मित्र इस पोस्टल आर्डर को अपने समीप के डाक-घर में ले जाएगा और उसे वहाँ से पोस्टल आर्डर के बदले रुपया मिल जाएगा। पोस्टल आर्डर खरीदने पर भी कुछ शुल्क लगता है।

सार्वजनिक टेलीफ़ोन

शीघ्र संदेश भेजना हो तो तुम अपना संदेश 'तार' द्वारा भेज सकते हो। एक 'तार-घर' से भेजा हुआ 'तार' बहुत थोड़ी देर में सैकड़ों किलोमीटर दूर के दूसरे तार-घर में पहुँच जाता है। वहाँ से वह संदेश लिखकर उसी समय पानेवाले तक पहुँचा दिया जाता है। 'तार' पर शब्दों की गिनती के हिसाब से पैसे लगते हैं। तार के संदेश में जितने अधिक शब्द होंगे उतने ही अधिक पैसे देने पड़ेंगे। इसलिए तार का संदेश बहुत छोटा होना चाहिए।

तार की तरह टेलीफ़ोन भी संदेश भेजने का एक अच्छा साधन है। इसके द्वारा हम दूर बैठे हुए व्यक्ति से सीधी बातचीत कर सकते हैं। यदि तुम्हारे घर में टेलीफ़ोन लगा है और शहर में या दूर किसी अन्य शहर में रहनेवाले व्यक्ति के पास भी टेलीफ़ोन है, तो तुम उसका नंबर मिलाकर उससे सीधी बातचीत कर सकते हो। वास्तव में टेलीफ़ोन के द्वारा हम ज़रूरत पड़ने पर डाक्टर, पुलिस या

नई दिल्ली का आकाशवाणी भवन जहाँ से दिल्ली रेडियो स्टेशन का कार्यक्रम प्रसारित होता है

फायर-ब्रिगेड को बुला सकते हैं।

डाक, तार और टेलीफ़ोन सेवाएँ हमें एक-दूसरे से संबंध बनाए रखने में सहायता देती हैं। इन्हें हम 'संचार के साधन' कहते हैं। संचार के कुछ और साधन भी हैं। इनके द्वारा हम बहुत दूर रहनेवाले लोगों से संबंध स्थापित कर सकते हैं। प्रतिदिन सुबह तुम लोगों को समाचारपत्र पढ़ते देखते हो। आजकल तो समाचारपत्र बहुत ही लोकप्रिय होते जा रहे हैं। क्या तुम इसका कारण जानते हो ? अपने देश और सारे संसार के बारे में हमें समाचारपत्रों से बड़ी जानकारी मिलती है। खेती में सुधार लाने के लिए सरकार क्या कर रही है ? देश के विभिन्न भागों में बाढ़-समस्या को किस प्रकार सुलझाया जा रहा है ? ऐसी सभी बातों का हमें समाचारपत्रों से पता चलता है। यदि देश के किसी भाग में रेल-दुर्घटना हो जाए तो इसका समाचार तुरंत समाचारपत्रों में छप जाता है और प्रत्येक व्यक्ति को इसके बारे में पता चल जाता है।

कुछ लोग बाज़ार-भाव मालूम करने के लिए समाचारपत्र पढ़ते हैं। इस प्रकार की जानकारी व्यापारियों के लिए बड़ी उपयोगी होती है। बाज़ारों में रोज नई और काम की चीज़ें बिकने आती हैं। समाचारपत्रों में इनके विज्ञापन छपते हैं, तो सभी को इनके बारे में जानकारी हो जाती है। समाचारपत्र हिन्दी, अंग्रेज़ी और लगभग सभी भारतीय भाषाओं में छपते हैं।

अब तो हमें समाचारपत्र की भी प्रतीक्षा नहीं करनी पड़ती। देश-विदेश के किसी भाग में जब भी कोई घटना होती है, इसका समाचार तुरंत ही रेडियो पर प्रसारित कर

दिया जाता है। शहरों में रेडियो बहुत लोकप्रिय हैं। जिन गाँवों में बिजली है, वहाँ रेडियो का प्रयोग आम होता जा रहा है। ट्रांसिस्टर रेडियो बैटरी से चलता है। जहाँ बिजली न हो, यह वहाँ भी चल सकता है। अपने घर में बैठे हुए तुम रेडियो या ट्रांसिस्टर से प्रमुख नेताओं के भाषण सुन सकते हो। खेल के मैदान में न जाकर तुम रेडियो पर ही क्रिकेट अथवा किसी अन्य मैच का आँखों देखा हाल सुन सकते हो। तरह-तरह के गीत, नाटक आदि भी तुम रेडियो पर सुनते हो। इनसे तुम्हारा मनोरंजन होता है।

संचार का एक अन्य महत्त्वपूर्ण साधन टेलीविज़न है। इसकी सहायता से तुम तक न केवल आवाज़ ही पहुँचती है, बल्कि गायक अथवा कलाकार का चित्र भी तुम पर्दे पर देख सकते हो। यदि गणतंत्र दिवस पर तुम समारोह देखने न जाना चाहो तो टेलीविज़न पर इसका आनंद उठा सकते हो। दिल्ली के बहुत-से स्कूलों में टेलीविजन द्वारा कुछ विषयों के पाठ पढ़ाए जाते हैं।

अब बताओ

1. कुछ ऐसे साधनों के नाम बताओ जिनके द्वारा तुम दूर रहने वाले अपने मित्रों अथवा संबंधियों को संदेश भेज सकते हो।
2. तार का संदेश छोटा क्यों होना चाहिए?
3. रेडियो का कौन-सा कार्यक्रम तुम्हें सबसे अच्छा लगता है?
4. रेडियो और टेलीविज़न में क्या अंतर है?
5. कलकत्ता में तुम्हारे मित्र को दुर्घटना में चोट लगी। उसे अस्पताल में भर्ती कराया गया। तुम दिल्ली में उसके माता-पिता को शीघ्र इस बात की सूचना देना चाहते हो। नीचे लिखे साधनों में से उसके सामने (✓) निशान लगाओ जो सबसे शीघ्र तुम्हारा संदेश पहुँचा सकता है:

   (　　) पत्र द्वारा।
   (　　) तार द्वारा।
   (　　) टेलीफ़ोन द्वारा।
   (　　) स्वयं जाकर।
   (　　) समाचारपत्र द्वारा।

कुछ करने को

1. पत्रों पर ठीक ढंग से पते लिखना और मनीआर्डर फार्म भरना सीखो।
2. टेलीफ़ोन का प्रयोग करना सीखो।

हम सब भारतवासी हैं

पंद्रह अगस्त 1947 का दिन हमारे लिए बहुत महत्त्वपूर्ण है। इस दिन हमारे देश में अंग्रेज़ों का शासन समाप्त हुआ था। एक लंबी लड़ाई के बाद हमें स्वतंत्रता मिली थी। देश के सभी भागों के लोगों ने इस लड़ाई में हिस्सा लिया था। महात्मा गांधी, जवाहरलाल नेहरू आदि इस आज़ादी की लड़ाई के बड़े नेता थे।

पंडित जवाहरलाल नेहरू स्वतंत्र भारत के प्रथम प्रधान मंत्री हुए। पंद्रह अगस्त 1947 की सुबह उन्होंने दिल्ली के लाल किले पर राष्ट्रीय झंडा फहराया। 15 अगस्त ही है हमारा स्वतंत्रता-दिवस।

आजादी मिलने के बाद हमने निश्चय किया कि देश में जनता का शासन हो। हमने एक संविधान बनाया। यह संविधान 26 जनवरी 1950 को देश में लागू किया गया। 26 जनवरी हमारा गणतंत्र दिवस है। स्वतंत्रता-दिवस और गणतंत्र दिवस हम सारे देश में राष्ट्रीय त्योहार के रूप में मनाते हैं।

हमारा देश एक विशाल देश है। यहाँ लोग विभिन्न भाषाएँ बोलते हैं, भिन्न-भिन्न धर्म मानते हैं और उनके रीति-रिवाज भी अलग-अलग हैं। परंतु हम सब भारतवासी हैं। हम सब का एक ही संविधान, एक ही राष्ट्रीय झंडा, एक ही राष्ट्रीय गान और एक ही राष्ट्रीय चिह्न है। ये ही हमारी राष्ट्रीय एकता के प्रतीक हैं।

14. हमारी आजादी की कहानी

आज हम स्वतंत्र हैं। देश में अपना शासन है। यह स्वतंत्रता हमें आसानी से नहीं मिली। स्वतंत्रता प्राप्त करने के लिए हमारे देशवासियों को अनेक बलिदान करने पड़े। एक लंबे संघर्ष के बाद 15 अगस्त, सन् 1947 ई० का सुनहरा दिन आया। उस दिन हमारे देश में विदेशी सरकार के शासन का अंत हो गया।

लगभग साढ़े तीन सौ वर्ष पहले इंग्लैंड में एक कंपनी बनी थी। इसका नाम ईस्ट इंडिया कंपनी था। इस कंपनी ने भारत से व्यापार करना शुरू किया। कुछ दिनों बाद इसने देशी राजाओं की आपसी लड़ाई और उनके कमज़ोर शासन का लाभ उठाकर धीरे-धीरे सारे देश पर अपना अधिकार कर लिया।

विदेशी राज्य से भारतवासी दुखी थे। सन् 1857 ई० में अंग्रेज़ी राज्य को समाप्त करने के लिए एक विद्रोह हुआ। इसमें छोटे-बड़े, राजा-प्रजा, हिन्दू-मुसलमान सभी ने भाग लिया। रानी लक्ष्मीबाई, ताँत्या टोपे, नानासाहब, मुग़ल सम्राट बहादुरशाह और कुँवर सिंह आदि इस लड़ाई के नेता थे। परंतु इस लड़ाई में हमको सफलता नहीं मिली।

विद्रोह तो दब गया, परंतु इसकी चिनगारी बुझी नहीं। विदेशी राज्य से सभी दुखी थे। देश के पढ़े-लिखे लोगों ने सोचा कि कोई ऐसी संस्था बनाई जाए जो अंग्रेज़ी सरकार को बता सके कि भारत की जनता क्या चाहती है। आज से लगभग 80 वर्ष पहले एक ऐसी संस्था बनाई गई। इसका नाम इंडियन नेशनल कांग्रेस रखा गया। कुछ उदार अंग्रेज़ों ने भी इस संस्था को बनाने में भारतीयों का साथ दिया। ए० ओ०

सन् सत्तावन के सेनानी :
लक्ष्मीबाई, ताँत्या टोपे, नानासाहब और बहादुरशाह

बाल गंगाधर तिलक

लाला लाजपत राय

ह्यूम को तो इसका जन्मदाता ही कहते हैं। उमेश चंद्र बैनर्जी, सुरेन्द्र नाथ बैनर्जी और दादाभाई नौरोजी ने कांग्रेस की नींव को मजबूत करने और इसे लोकप्रिय बनाने के लिए बहुत काम किया।

कांग्रेस का अधिवेशन हर साल होता था। देशवासियों की माँगें अंग्रेजी सरकार के सामने रखी जाती थीं। सरकार कभी-कभी इनमें से कुछ माँगों को स्वीकार भी कर लेती थी।

धीरे-धीरे कांग्रेस की शक्ति बढ़ने लगी। देश के सभी भागों के नेता कांग्रेस में भाग लेने लगे। महाराष्ट्र के गोपाल कृष्ण गोखले और बाल गंगाधर तिलक, बंगाल के विपिन-चंद्र पाल तथा पंजाब के लाला लाजपत राय इनमें प्रमुख थे। तिलक ने सबसे पहले 'स्वराज्य' की माँग की। उन्होंने कहा, "स्वराज्य हमारा जन्मसिद्ध अधिकार है।" नेताओं ने जनता में एक नया जोश पैदा किया। अंग्रेज सरकार ने कुछ नेताओं को जेल में डालकर बड़े कष्ट दिए। फिर भी देशवासी घबराए नहीं। वे बराबर विदेशी सरकार का विरोध करते रहे। देश में स्वराज्य की माँग बढ़ती गई।

कांग्रेस का ज़ोर और बढ़ता गया। इस समय महात्मा गांधी अफ़्रीका से भारत लौटे और कांग्रेस में शामिल हो गए। बड़े-बड़े जलसों और अधिवेशनों में देशवासियों ने स्वराज्य की माँग को दोहराया। अंग्रेज़ी सरकार ने अकसर उसका जवाब लाठी और गोली से दिया। उसने कठोर कानून बनाकर जनता की माँगों को दबाने का प्रयत्न किया।

सरोजिनी नायडू

चक्रवर्ती राजगोपालाचार्य

लेकिन जनता का विरोध बढ़ता ही गया।

ऐसे ही एक कानून के विरोध में अमृतसर के 'जलियाँवाला बाग़' में एक सभा हुई। हज़ारों स्त्री, पुरुष और बच्चे अपने नेताओं के भाषण सुनने को जमा हुए। अचानक एक अंग्रेज़ फौज़ी अफ़सर अपने सिपाहियों के साथ वहाँ आ पहुँचा। बाग़ के दरवाज़े को घेरकर उसने निहत्थे लोगों पर गोली चलाने की आज्ञा दे दी। बाहर निकलने का कोई रास्ता नहीं था। सैकड़ों स्त्री, पुरुष और बच्चे पलभर में गोलियों से मार दिए गए।

इस कांड से मानो देश में आग लग गई। स्वतंत्रता के आंदोलन की बागडोर अब गांधीजी ने सँभाली। उन्होंने देश को एक नया मार्ग दिखलाया। उन्होंने लोगों से कहा कि विदेशी सरकार से सहयोग न करो। किसी बात में उसका साथ न दो। विदेशी वस्तुओं को काम में लाना बंद कर दो। देश के लिए इस समय यही सच्चा रास्ता है। रास्ते में आनेवाली हर एक कठिनाई को सहो और अहिंसा को अपनाओ।

सारा देश गांधीजी के साथ था। घर-घर कांग्रेस का तिरंगा झंडा फहराने लगा। स्त्री, पुरुष, बूढ़े और बच्चे मिलकर गा उठे :

विजयी विश्व तिरंगा प्यारा।
झंडा ऊँचा रहे हमारा।
सदा शक्ति सरसाने वाला,
प्रेमसुधा बरसाने वाला,

मौलाना अबुल कलाम आज़ाद

वीरों को हर्षाने वाला,
मातृभूमि का तन-मन सारा।
झंडा ऊँचा रहे हमारा।

ये उस प्रिय गाने की कुछ पंक्तियाँ हैं जिसको सुनते ही उस ज़माने में हज़ारों स्त्री-पुरुष, बूढ़े-जवान और बच्चे तिरंगे झंडे के नीचे अपना सब कुछ बलिदान करने के लिए आ जाते थे। सारा देश आज़ादी पाने के लिए बेचैन हो उठा था। गांधीजी के साथ अब देश के बड़े-बड़े नेता थे। इनमें मोतीलाल नेहरू, सरदार पटेल, सुभाषचंद्र बोस, चक्रवर्ती राजगोपालाचार्य, अबुल कलाम आज़ाद, राजेन्द्र प्रसाद, सत्यमूर्ति, सरोजिनी नायडू आदि के नाम प्रसिद्ध हैं।

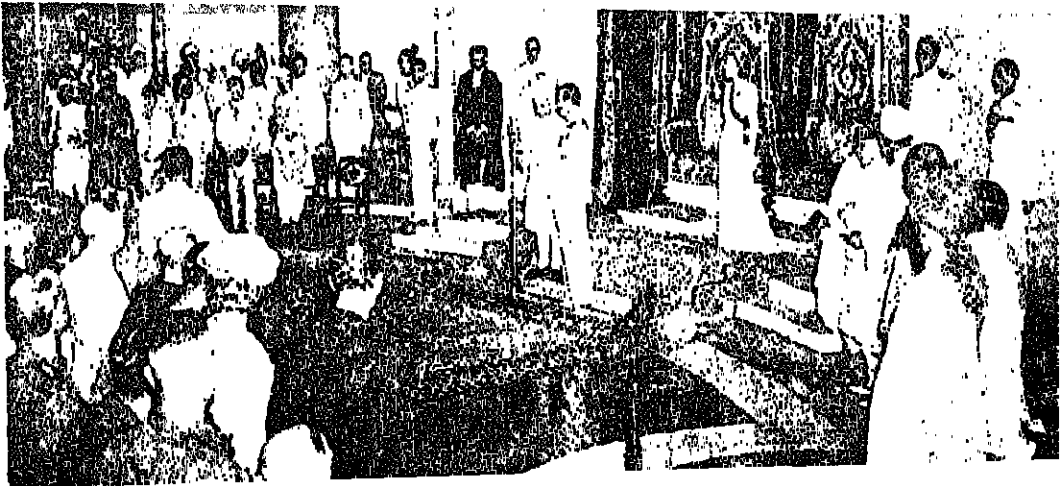
लाहौर में कांग्रेस का एक बड़ा अधिवेशन हुआ। इसके सभापति जवाहरलाल जी थे। इसमें यह प्रस्ताव पास किया गया था कि देश अब पूर्ण स्वतंत्रता से कम कुछ भी स्वीकार नहीं करेगा। 26 जनवरी, सन् 1930 ई० को देशभर में जलसे किए गए। बड़े-बड़े जलूस निकाले गए। देशवासियों ने पूर्ण स्वतंत्रता के लिए हर प्रकार के बलिदान करने की प्रतिज्ञा की। 20 साल बाद यही दिन हमारा गणतंत्र दिवस बना।

आज़ादी का यह आंदोलन दिनों-दिन बढ़ता गया। गांधी जी और अन्य नेता कभी सरकार को कर न देने का आंदोलन चलाते, कभी नमक कानून तोड़ने का और कभी उसके हर काम से असहयोग करने का। अंग्रेज़ी सरकार कभी तो भारतीयों को कुछ अधिकार देने का वायदा करती, परंतु अधिकतर आंदोलन को कठोरता से दबाती। गांधीजी,

उनके साथी नेताओं और दूसरे हज़ारों स्त्री-पुरुषों को जेल में बंद कर देती। जलसों पर लाठी और गोली चलाती। असर इसका उलटा होता और आंदोलन और ज़ोर पकड़ता। भगत सिंह, सुखदेव, चंद्रशेखर आज़ाद और राम प्रसाद बिस्मिल आदि क्रांतिकारियों ने तो अंग्रेज़ी सरकार की खुली बगावत शुरू कर दी और देश के लिए शहीद हो गए।

गांधीजी के नेतृत्व में एक बहुत बड़ा आंदोलन सन् 1942 ई० में शुरू हुआ। उन्होंने 'भारत छोड़ो' का नारा लगाया। अंग्रेज़ी सरकार ने इस आंदोलन को दबाने के लिए पहले से भी अधिक अत्याचार किए। सारे देश की जेलें देशभक्तों से भर गईं। जब लाठी और गोली से कुछ न हुआ तब कुछ गाँवों में आग लगा दी गई, खेत उजाड़ दिए गए और स्कूल-कालेज बंद कर दिए गए, लेकिन जनता का जोश कम नहीं हुआ। दिन-प्रतिदिन आंदोलन ज़ोर पकड़ता गया।

अंत में सरकार को ही झुकना पड़ा। अंग्रेज़ अधिकारियों ने नेताओं से देश की स्वतंत्रता के विषय में बातचीत करनी शुरू कर दी। देश में एक और संस्था थी जिसका नाम 'मुस्लिम लीग' था। इसके नेता भारत के कुछ भागों को लेकर 'पाकिस्तान' नाम का देश बनाना चाहते थे। अंत में देश दो हिस्सों में बँट गया। इस प्रकार भारत और पाकिस्तान बन गए। 15 अगस्त, सन् 1947 ई० को देश आज़ाद हो गया और दो सौ साल की गुलामी की बेड़ियाँ टूट गईं।

जवाहरलाल नेहरू स्वतंत्र भारत के प्रथम प्रधान मंत्री के रूप में शपथ लेते हुए

अब बताओ

1. देश में अंग्रेज़ों का राज्य क्यों स्थापित हो गया ?
2. 'इंडियन नेशनल कांग्रेस' की स्थापना क्यों की गई ?
3. 26 जनवरी का दिन हमारे देश के लिए क्यों महत्त्वपूर्ण है ?
4. गाँधीजी ने स्वतंत्रता-आंदोलन के विषय में जनता को क्या आदेश दिए ?
5. स्वतंत्रता-आंदोलन के विषय में कुछ बातें नीचे लिखी हैं। इनमें से जो इस आंदोलन के लिए सही हैं, उन पर इस प्रकार (✓) सही का निशान लगाओ :

   (   ) इसमे देश के प्रत्येक भाग के लोग सम्मिलित हुए।
   (   ) लोगों ने सरकारी नौकरियाँ छोड़ दीं।
   (   ) इसमें एक धर्म के लोगों ने भाग लिया।
   (   ) इसमें शहर के लोग ही सम्मिलित हुए।
   (   ) जनता ने अंग्रेज़ी सरकार को कर देने का विरोध किया।
   (   ) विदेशी वस्तुओं का प्रयोग बंद कर दिया गया।

कुछ करने को

1. स्वतंत्रता-संग्राम के नेताओं की सूची बनाओ। प्रत्येक नेता के सामने उसका जन्म-स्थान लिखो।
2. स्वतंत्रता-संग्राम के नेताओं के चित्र एकत्र करो।

15. हमारा संविधान

आज़ादी प्राप्त करने के पहले हमारे देश में अंग्रेज़ों की बनाई सरकार थी। उन्हीं के बनाए कानून चलते थे। जब भारत स्वतंत्र हुआ तो सबसे पहला काम अपनी सरकार बनाना था। इसके लिए नियम बनाने थे, शासन का नया ढंग सोचना था। जनता के अधिकार और कर्त्तव्य निश्चित करने थे और देश की उन्नति के उपाय सोचने थे।

इन सब बातों को निश्चित करने के लिए जनता के चुने हुए प्रतिनिधियों की एक सभा बनाई गई। इसे 'संविधान-सभा' कहते हैं। डाक्टर राजेन्द्र प्रसाद इसके सभापति चुने गए। तुम्हें शायद मालूम हो कि वे ही हमारे प्रथम राष्ट्रपति भी हुए थे।

'संविधान सभा' ने लगभग तीन वर्ष के कार्य के बाद देश का एक संविधान बनाया। इसे 'भारतीय संविधान' कहते हैं। यह हमारे लिए बहुत महत्त्वपूर्ण है। 26 जनवरी, सन् 1950 ई० को नया संविधान सारे देश में लागू कर दिया गया। भारत में जनता का राज्य शुरू हुआ।

हमारे संविधान की प्रस्तावना में लिखा है :

हम, भारत के लोग, भारत को एक **संपूर्ण प्रभुत्व-संपन्न, लोकतंत्रात्मक समाजवादी धर्म निरपेक्ष गणराज्य** बनाने के लिए, तथा उसके समस्त नागरिकों को :

सामाजिक, आर्थिक और राजनीतिक **न्याय,**
विचार, अभिव्यक्ति, विश्वास, धर्म

संविधान-सभा के सभापति—डा. राजेन्द्र प्रसाद

और उपासना की **स्वतंत्रता,**
प्रतिष्ठा और अवसर की **समता**

प्राप्त कराने के लिए
तथा उन सब में

व्यक्ति की गरिमा और राष्ट्र की
एकता और अखंडता सुनिश्चित करने वाली **बंधुता बढ़ाने के लिए**

दृढ़संकल्प होकर अपनी इस संविधान-सभा
में आज तारीख 26 नवंबर, 1949 ई० (मिति
मार्गशीर्ष शुक्ला सप्तमी, संवत् दो हज़ार छः विक्रमी)
को **एतद्द्वारा** इस संविधान को **अंगीकृत, अधिनियमित**
और आत्मार्पित करते हैं।

हमारे संविधान के अनुसार देश में कोई राज़ा नहीं होता। समस्त सत्ता जनता के हाथ में है। सभी देशवासियों को बराबर के अधिकार प्राप्त हैं।

तुम जानते हो कि हमारे देश में 60 करोड़ से भी अधिक लोग रहते हैं। सब लोग तो देश का शासन नहीं कर सकते। इसलिए इस कार्य के लिए वे अपने प्रतिनिधि चुनते हैं। ये ही देश की सरकार बनाते हैं, देश के लिए कानून बनाते हैं और देश की रक्षा का प्रबंध करते हैं। इस शासन-प्रणाली को लोकतंत्रात्मक शासन-प्रणाली कहते हैं।

हमारे संविधान के अनुसार देश की सरकार का सबसे बड़ा अधिकारी 'राष्ट्रपति' होता है। जल, स्थल और वायु सेना भी उसी के अधीन हैं। राष्ट्रपति को जनता के चुने हुए प्रतिनिधि ही चुनते हैं। इस प्रकार वह जनता का प्रतिनिधि ही होता है।

अब बताओ

1. स्वतंत्रता मिलने के बाद संविधान बनाने की आवश्यकता क्यों पड़ी ?
2. लोकतंत्रात्मक शासन-प्रणाली का क्या अर्थ है ?
3. ज़ल, थल और वायु सेना का सर्वोच्च अधिकारी कौन है ?
4. राष्ट्रपति को कौन चुनता है ?

कुछ करने को

1. संविधान की प्रस्तावना को याद करो।
2. जब से हमारा देश आज़ाद हुआ है, उस समय से अब तक जो राष्ट्रपति हुए हैं उनके चित्र एकत्र करो।

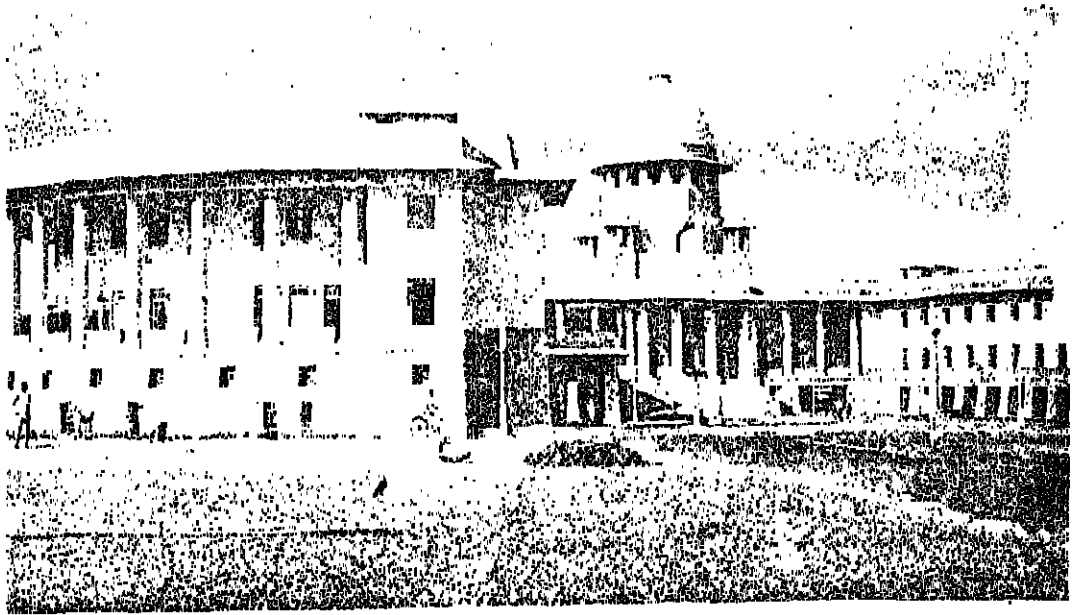
संसद भवन

16. हमारी संघीय सरकार

तुम जानते हो हमारे देश का एक संविधान है। इस संविधान के अनुसार हमारे देश में कोई राजा नहीं होता है। जनता अपना शासन स्वयं करती है। जानते हो कैसे ?

हर पाँच साल के बाद आम चुनाव होता है। हम अपने प्रतिनिधि चुनते हैं। ये प्रतिनिधि ही शासन की बागडोर सँभालते हैं और देश के लिए नियम बनाते हैं। भारत के लगभग सभी लोग जिनकी आयु 21 वर्ष या उससे अधिक हो चुनाव में भाग ले सकते हैं।

देश के लिए नियम बनानेवाली सबसे ऊँची संस्था भारतीय संसद कहलाती है। संसद के अंग हैं—भारत का राष्ट्रपति, लोकसभा और राज्यसभा।

लोकसभा के सदस्यों का चुनाव जनता द्वारा होता है। हमारे देश में बहुत-से राजनैतिक दल हैं। चुनाव में प्रत्येक दल अपने उम्मीदवार खड़े करता है। सब मतदाता वोट डालने जाते हैं और अपनी पसंद के उम्मीदवार के पक्ष में वोट डालते हैं। जिस उम्मीदवार को सब से अधिक वोट मिलते हैं, वह चुनाव जीतता है। देश के सब भागों में मतदाता अपने प्रतिनिधि चुनते हैं। ये चुने हुए प्रतिनिधि लोकसभा के सदस्य होते हैं।

सर्वोच्च न्यायालय

राज्यसभा के लिए देश के सब राज्यों से, विधानमंडल के सदस्य अपने प्रतिनिधि चुनते हैं। प्रत्येक राज्य के विधानमंडल को कुछ प्रतिनिधि चुनने का अधिकार होता है। ये सब प्रतिनिधि राज्यसभा के सदस्य होते हैं। इनके अतिरिक्त भारत के राष्ट्रपति 12 सदस्यों को राज्यसभा के लिए मनोनीत करते हैं। राज्यसभा एक स्थायी सभा है। राज्यसभा के एक-तिहाई सदस्य हर दो साल के बाद इससे अलग हो जाते हैं और उनके स्थान पर नए सदस्य चुने जाते हैं।

राष्ट्रपति का चुनाव लोकसभा, राज्यसभा और राज्यों की विधानसभाओं के चुने हुए सदस्य करते हैं।

संघीय सरकार में संसद बहुत महत्त्वपूर्ण है। दिल्ली में एक संसद भवन है जिसमें संसद की सभाएँ होती हैं। इन सभाओं को अधिवेशन कहते हैं। संसद पूरे देश के लिए कानून बनाती है।

संसद में भिन्न-भिन्न दलों के सदस्य होते हैं। हर दल अपना नेता चुनता है। राष्ट्रपति बहुमतवाले दल के नेता को प्रधान मंत्री बनाते हैं। प्रधान मंत्री की सलाह पर राष्ट्रपति अन्य मंत्रियों को नियुक्त करते हैं। ये सब मंत्री मिलकर देश का शासन चलाते हैं।

तुम शायद जानते हो कि आजकल लोकसभा में कांग्रेस (इ) का बहुमत है और इसके ही हाथ शासन की बागडोर है। बताओ आज कल हमारे देश का प्रधान मंत्री कौन है।

अच्छे शासन का एक जरूरी काम न्याय की व्यवस्था करना है। न्याय के लिए अदालतें

हैं। देश का सबसे बड़ा न्यायालय दिल्ली में है। इसे सर्वोच्च न्यायालय कहते हैं। इस न्यायालय के सबसे बडे न्यायाधीश को सर्वोच्च न्यायाधीश कहते हैं। राष्ट्रपति सर्वोच्च न्यायाधीश को नियुक्त करते हैं। सर्वोच्च न्यायाधीश की सलाह से राष्ट्रपति सर्वोच्च न्यायालय के अन्य न्यायाधीशों को नियुक्त करते हैं। सर्वोच्च न्यायालय अपने कार्य में स्वतंत्र है और हमारे अधिकारों की रक्षा करता है।

अब बताओ

1. जनता अपना शासन कैसे करती है ?
2. संसद के कौन-कौन-से अंग हैं ? संसद क्या काम करती है ?
3. मंत्रियों को कौन नियुक्त करता है ?
4. भारत के सबसे बड़े न्यायालय को क्या कहते हैं ?
5. प्रधान मंत्री की नियुक्ति कैसे होती है ?

कुछ करने को

1. अपने अध्यापकजी की सहायता से भारत की संघीय सरकार के मंत्रियों के नामों की सूची बनाओ।
2. जब से भारत स्वतंत्र हुआ है उस समय से अब तक हुए सब प्रधान मंत्रियों के चित्र एकत्र करो।

17. हमारे अधिकार और कर्त्तव्य

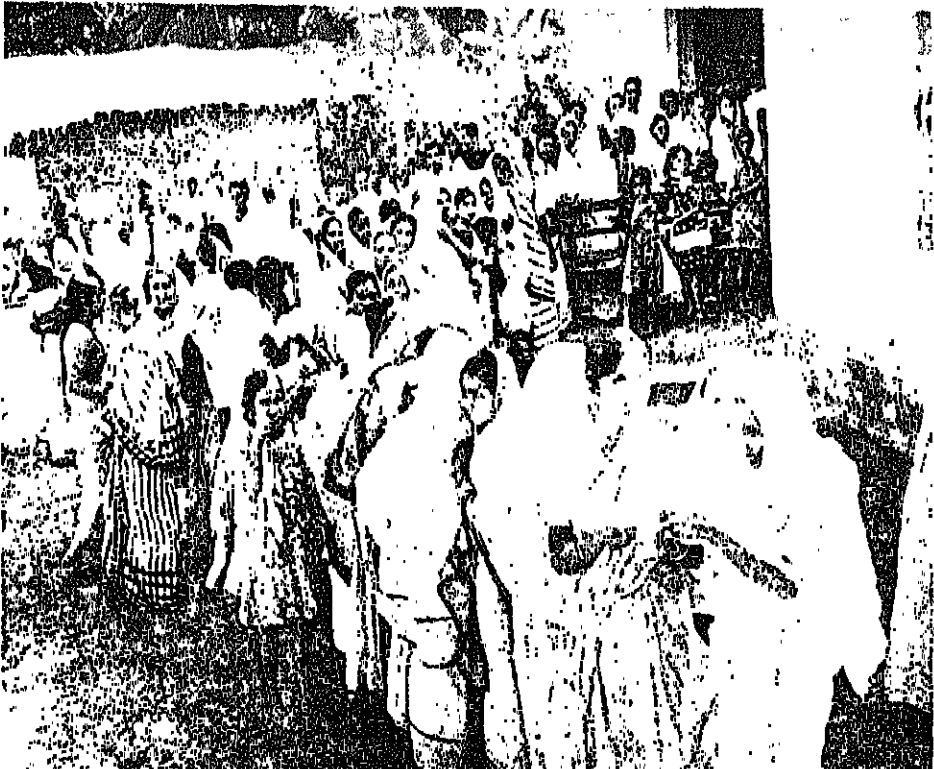
चुनाव का दिन था। गाँव में चहल-पहल थी। इतवारी और उसकी पत्नी सविता बड़े प्रसन्न दिखाई देते थे। सबेरे ही नहा-धोकर दोनों ने साफ़ कपड़े पहने और स्कूल की ओर चल पड़े। उनका लड़का मोहन भी उनके साथ हो लिया। स्कूल के पास काफ़ी भीड़ थी। अधिकतर लोग दो कतारों में खड़े थे और एक-एक करके कमरे के अंदर जा रहे थे। वे भी जाकर कतार में खड़े हो गए। इतवारी और सविता की ज़ब बारी आई, वे अंदर गए। कुछ देर के बाद वे बड़े खुश वापस आए।

जब वे घर लौट रहे थे, मोहन ने पूछा, "पिताजी, आप अंदर क्या करने गए थे?"

इतवारी ने कहा, "मैं वोट डालने गया था।"

"वोट कैसे डाला जाता है?" मोहन ने बड़ी उत्सुकता से पूछा।

इतवारी बोला, "मुझे वहाँ एक पर्चा दिया गया जिस पर उम्मीदवारों के नाम लिखे हुए थे। नाम के साथ ही उनका चुनाव चिह्न बना हुआ था। जिस उम्मीदवार को

वोट डालने के लिए कतार में खड़े हुए लोग

मैं चुनना चाहता था, उसके नाम के आगे मैंने गुणा (X) का निशान लगा दिया और पर्चा मोड़कर एक पेटी में डाल दिया। यही वोट डालना होता है।"

मोहन ने फिर पूछा, "पिताजी, ये वोट कब डाले जाते हैं ?"

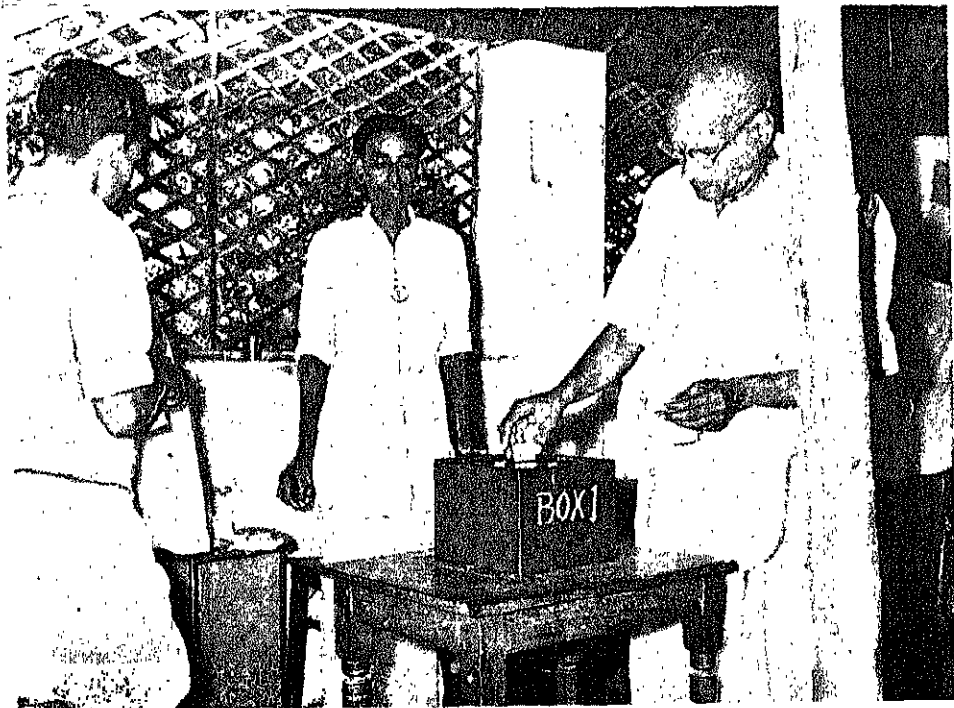
इतवारी ने कहा, "वोट हर छः साल के बाद डाले जाते हैं। मैं इस अधिकार का कई बार प्रयोग कर चुका हूँ।"

"पिताजी, वोट देने का अधिकार क्या है और इसका क्या महत्त्व है ?" मोहन ने पूछा।

इतवारी कुछ देर चुप रहा और फिर बोला, "बेटा, यह तो मैं नहीं जानता। यह तो तुम अपने अध्यापक जी से पूछना पर इतना ज़रूर जानता हूँ कि जब से मुझे यह अधिकार मिला है गाँव में बड़े परिवर्तन हुए हैं। कई नई-नई बातें हुई हैं।"

दूसरे दिन जब मोहन स्कूल गया तो वह बहुत उत्सुक था। जब अध्यापक सामाजिक अध्ययन पढ़ाने लगे तो उसने उन्हें कल की सारी बातचीत बताई और पूछा, "श्रीमान, वोट देने का अधिकार क्या है ?"

अध्यापक ने उत्तर दिया, "तुमने कुछ दिन पहले भारत के संविधान के बारे में पढ़ा था। उसमें बताया गया था कि अब भारत एक गणतंत्र राज्य है। जनता के चुने हुए प्रतिनिधियों के द्वारा शासन-कार्य चलाया जाता है। इन प्रतिनिधियों को चुनने का हर भारतीय मतदाता को अधिकार है। इस अधिकार को मत देने का अधिकार

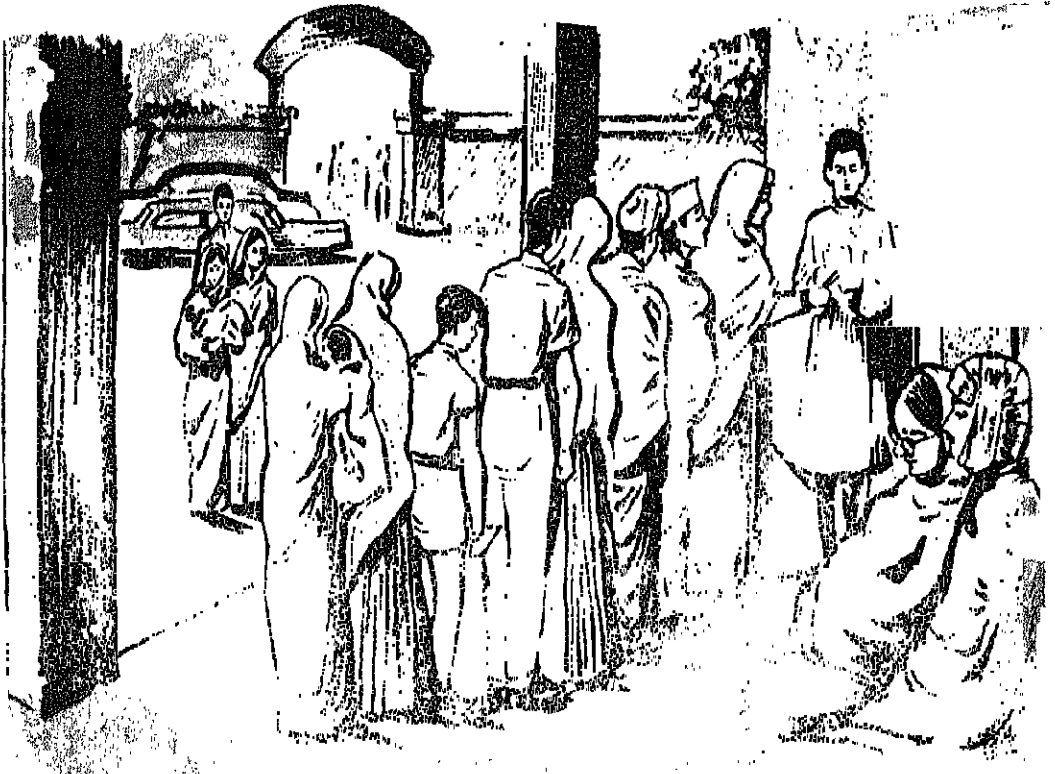
वोट डालता हुआ एक मतदाता

कहते हैं। यह अधिकार 21 वर्ष की आयु हो जाने पर हर भारतवासी को मिलता है। तुम भी जब उस उम्र तक पहुँचोगे तब इस अधिकार का प्रयोग कर सकोगे।"

मोहन ने फिर पूछा, "क्या संविधान में इस प्रकार के और भी अधिकार हैं जिनका उपयोग हर नागरिक कर सकता है?"

"हाँ," अध्यापक ने उत्तर दिया और कहा, "दूसरा प्रमुख अधिकार स्वतंत्रता का है। अब हर नागरिक अपने विचार दूसरे लोगों के सामने रखने के लिए स्वतंत्र है। वह भाषण देकर, अखबार में लेख देकर या पुस्तक लिखकर अपने विचारों को प्रकट कर सकता है। इस अधिकार का प्रयोग करते समय हर नागरिक को बड़ी सावधानी रखनी चाहिए कि किसी की भावनाओं को ठेस न पहुँचे।

"इसी अधिकार के अनुसार हमें यह भी स्वतंत्रता है कि हम कोई भी रोजगार अपनाएँ, डाक्टर बनें या वकील, खेती करें या व्यापार। हम जिस धर्म को चाहे मानें।

"लेकिन स्वतंत्रता का अर्थ मनमानी करने का नहीं है। यदि ऐसा होगा तो कोई भी सड़क पर अपने जानवर बाँधकर सारे यातायात में रुकावट पैदा कर देगा। कोई भी किसी के खेत को काट लेगा। इससे बड़ी गड़बड़ी फैल जाएगी और कोई भी स्वतंत्रता का उपयोग ठीक तरह से न कर पाएगा। इसीलिए अधिकार के साथ हमारे कुछ कर्त्तव्य भी होते हैं। इन अधिकारों और कर्त्तव्यों का सब लोग ठीक प्रकार से प्रयोग करें, इसके

सरकारी अस्पताल में इलाज की सुविधा का अधिकार और कतार बनाकर खड़े होने का कर्त्तव्य

लिए कानून बनाए गए हैं। ये कानून हमारे चुने हुए प्रतिनिधि ही बनाते हैं। हमें इन अधिकारों का प्रयोग वहीं तक करना चाहिए, जहाँ तक किसी दूसरे को इन्हें प्रयोग करने में बाधा न पहुँचे।"

मोहन ने और अधिक जानकारी के लिए पूछा, "गुरुजी, क्या हर नागरिक इन अधिकारों का उपयोग समान तरीक़े से कर सकता है?"

अध्यापक ने उत्तर दिया, "हमारे संविधान के अनुसार सभी नागरिक बराबर हैं। चाहे वे हिन्दू हों या मुसलमान, बड़े सरकारी अफ़सर हों या साधारण नागरिक, सबको अपनी-अपनी उन्नति करने का बराबर अधिकार है। समानता का अधिकार भी संविधान ने दिया है। सभी बालकों को शिक्षा प्राप्त करने का समान अधिकार मिला हुआ है। सरकारी अस्पतालों में इलाज की सुविधा सभी के लिए है। सरकारी नौकरी के लिए सभी लोग उम्मीदवार हो सकते हैं। हर जाति और हर वर्ग के लोगों को इस तरह की सुविधाओं से लाभ उठाने का समान अधिकार है। सभी लोग देश के प्रत्येक भाग में आ-जा सकते हैं।"

इस पर रमेश बोला, "यदि अधिकार के प्रयोग में कोई बाधा डाले या अधिकार छीनना चाहे तो उसको रोकने का क्या उपाय है?"

अध्यापक ने उत्तर दिया, "संविधान में इसकी भी व्यवस्था कर दी गई है। कानून के सामने सभी बराबर हैं। कोई बड़ा-छोटा नहीं। यदि किसी के अधिकार के प्रयोग में कोई रुकावट आती है तो वह न्यायालय से न्याय की माँग कर सकता है। ये सभी अधिकार संविधान द्वारा दिए गए 'मूल-अधिकार' हैं।"

रमेश को उत्तर देने के पश्चात, अध्यापक ने फिर पूछा, "क्या तुम बता सकते हो कि अपने अधिकारों का प्रयोग करते समय हमें किन बातों का ध्यान रखना चाहिए?" एक छात्र ने उत्तर दिया, "हमें अपने अधिकारों का प्रयोग करते समय दूसरों के अधिकारों का भी ध्यान रखना चाहिए। यह हमारा कर्तव्य है।" इस उत्तर को सुनकर अध्यापक बहुत प्रसन्न हुए।

अध्यापक ने फिर छात्रों को एक नई सूचना भी दी। उन्होंने कहा कि 'मूल अधिकारों' की तरह हमारे संविधान में नागरिकों के मूल कर्तव्यों का भी उल्लेख है। संविधान में दिए गए मूल कर्तव्यों के अनुसार भारत के नागरिकों को राष्ट्र ध्वज और राष्ट्र गान का आदर करना चाहिए। भारत की एकता और अखंडता की रक्षा करना प्रत्येक नागरिक का कर्तव्य है। देश की रक्षा के लिए तैयार रहें। धर्म, भाषा और प्रदेश के भेद भाव से दूर रहें। ऐसी प्रथाओं का त्याग करें जो स्त्रियों के सम्मान के विरुद्ध हैं। वन, झील, नदी और वन्य जीवों की रक्षा करना हमारा कर्तव्य है। राष्ट्रीय

सम्पत्ति जैसे स्कूल, हस्पताल, पुल, रेल, ऐतिहासिक इमारतों आदि की रक्षा करना हमारा कर्तव्य है । हिंसा तथा तोड़ फोड़ की भावना से दूर रहें ।

इस प्रकार हमने जाना कि अधिकारों के साथ-साथ, हमें अपने कर्तव्यों का भी पालन करना चाहिए । हमें अपने प्रतिनिधि चुनने का अधिकार है । हमें अपने इस अधिकार का सावधानी से प्रयोग करना चाहिए । देश की उन्नति हो इसलिए हमें योग्य व्यक्तियों को ही चुनना चाहिए । योग्य व्यक्तियों को चुनकर ही हम एक अच्छी सरकार बना सकते हैं ।

मोहन सारी बातें अच्छी तरह समझ गया। घर आकर अपने पिताजी से उसने सारी बात कही और उन्हें बताया कि वोट देने का अधिकार कितना महत्त्वपूर्ण है।

अब बताओ

1. मत देने के अधिकार का क्या अर्थ है ? हमें चुनाव में कैसे व्यक्ति को मत देना चाहिए ?
2. कानून का पालन करना क्यों ज़रूरी है ?
3. हम सरकार को कर क्यों देते हैं ?
4. हमारे संविधान में दिए गए दो कर्तव्यों के उदाहरण दो ।
5. नीचे लिखे वाक्यों में उन पर (✓) चिह्न लगाओ जिनमें स्वतंत्रता के अधिकार का सही प्रयोग किया गया हो :
   - ( ) घर में सफ़ाई रहे इसलिए श्याम अपनी गाय सड़क के बीच में बाँधता है।
   - ( ) रामू को भूख लगी और उसने श्याम के बाग़ से आम तोड़कर खा लिए।
   - ( ) सोहन ने देश की खाद्य-समस्या पर एक लेख अखबार में छपवाया है।
   - ( ) कर्मचंद अपने घर में रात को देर तक ज़ोर-ज़ोर से रेडियो बजाता है।

कुछ करने को

1. अध्यापक की सहायता से कक्षा के मानीटर का चुनाव असली चुनाव के ढंग पर करो।
2. अपने अधिकारों और कर्त्तव्यों की एक सूची बनाओ।

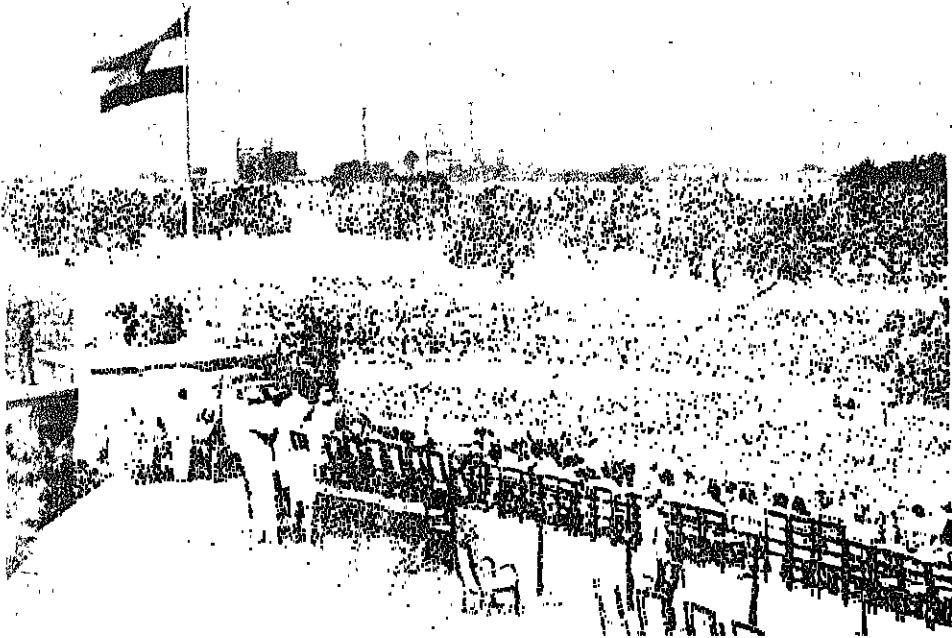
18. हमारे राष्ट्रीय त्योहार

तुम जानते हो हमारे देश के भिन्न-भिन्न राज्यों में रहनेवाले लोग कई त्योहार जैसे होली, बैसाखी, दीवाली, दशहरा, गुरुपर्व, ईद, बड़ा दिन, गुड फ़ाइडे आदि मनाते हैं। परंतु कुछ ऐसे भी त्योहार हैं जो देश के सब भागों में सब लोग मनाते हैं। सब धर्मों के लोग इन त्योहारों में भाग लेते हैं। ये त्योहार राष्ट्रीय त्योहार कहलाते हैं। स्वतंत्रता-दिवस, गाँधी-जयंती और गणतंत्र दिवस हमारे राष्ट्रीय त्योहार हैं। आओ, तुम्हें इनके बारे में जानकारी कराएँ।

1. स्वतंत्रता दिवस—15 अगस्त

पंद्रह अगस्त, 1947 का दिन हमारे इतिहास में एक महत्त्वपूर्ण दिन है। इस दिन हमें आज़ादी मिली थी। हमारे प्रथम प्रधान मंत्री स्वर्गीय जवाहरलाल नेहरू ने पहली बार लाल किले पर राष्ट्रीय झंडा फहराया था। तभी से 15 अगस्त का दिन हमारा राष्ट्रीय त्योहार बन गया है। हर साल इस दिन देश में रहनेवाले सभी लोग बड़े चाव और उमंग से अपनी आज़ादी की सालगिरह मनाते हैं।

15 अगस्त को नगर-नगर और गाँव-गाँव में राष्ट्रीय झंडा फहराया जाता है। राष्ट्रीय गान गाया जाता है तथा सभाएँ और भाषण होते हैं।

स्वतंत्रता दिवस पर जवाहरलाल नेहरू लाल किले के सामने भाषण देते हुए

स्कूल में विशेष चहल-पहल दिखाई देती है। स्कूल के सब लोग मैदान में इकट्ठे होते हैं और राष्ट्रीय झंडा फहराते हैं। बच्चे परेड करके राष्ट्रीय झंडे को सलामी देते हैं। बालसभा की बैठक में गाने और कविताएँ सुनाते हैं। नाटक खेलते हैं।

भारत की राजधानी दिल्ली में स्वतंत्रता दिवस विशेष धूमधाम से मनाया जाता है। लाल किले के मैदान में लाखों की संख्या में अमीर, ग़रीब, किसान, अध्यापक, मज़दूर, व्यापारी आदि सभी वर्गों और धर्मों के स्त्री-पुरुष और बच्चे एकत्र होते हैं। हमारे प्रधान मंत्री लाल किले के ऊपर राष्ट्रीय झंडा फहराते हैं। सभी लोग राष्ट्रीय ध्वज को सम्मान देने के लिए सावधान की अवस्था में खड़े होते हैं। थल, जल और वायु सेना के दस्ते झंडे को सलामी देते हुए राष्ट्रीय गान की धुन बजाते हैं। इसके बाद प्रधान मंत्री राष्ट्र के नाम अपना संदेश देते हैं। वे जनता को याद दिलाते हैं कि देश के रहने वाले सभी भारतीय हैं। हम सबको मिल-जुलकर देश की आज़ादी की रक्षा करनी है। दूसरे उन्नत देशों की तरह हमें भारत को भी आगे बढ़ाना है। देश से ग़रीबी, अज्ञान और बीमारी को दूर भगाना है।

2. गांधी-जयंती—2 अक्तूबर

आज छुट्टी का दिन है, परंतु पाठशाला की बालसभा ने गांधी-जयंती मनाने का आयोजन किया है। पाठशाला में सभी लड़के-लड़कियाँ बैठे हैं। एक मेज़ पर गांधीजी का चित्र रखा है। बालसभा के सभापति चौथी कक्षा में पढ़नेवाले राकेश ने गांधीजी के चित्र को हार पहनाया।

सभा का कार्यक्रम आरंभ करते हुए उसने कहा, "आज 2 अक्तूबर है, गांधीजी का जन्मदिन। उनकी याद में यह दिन सारे देश में मनाया जाता है। सब जगह सभाएँ होती हैं। लोग इकट्ठे होकर चर्खा कातते हैं और गांधीजी के प्रिय भजन गाते हैं। दिल्ली में तो आज के दिन राजघाट पर एक विशेष कार्यक्रम होता है।

सुबह से देश के बड़े-बड़े नेता और हज़ारों लोग जमा होते हैं। चर्खा काता जाता है और रामधुन गाई जाती है। सब मिलकर गाते हैं :

रघुपति राघव राजाराम, पतितपावन सीताराम।
ईश्वर अल्लाह तेरे नाम, सबको सन्मति दे भगवान ।।

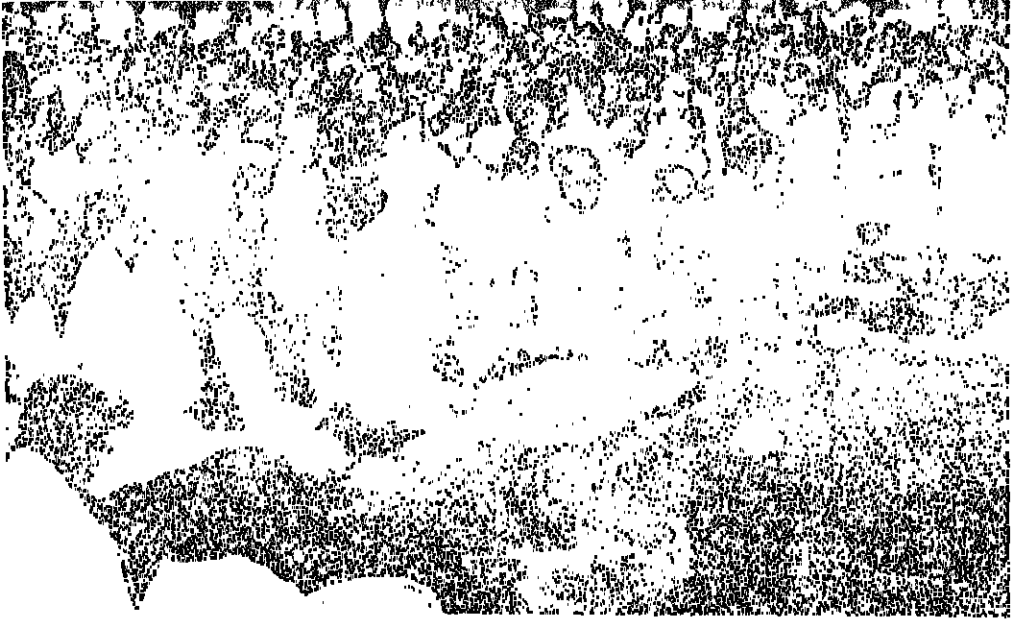
गांधीजी को राष्ट्रपिता कहा जाता है। हम उन्हें प्यार से 'बापू' कहते हैं। वे एक महान पुरुष थे। उन्होंने देश के लिए अनेक बलिदान किए। उन्होंने आज़ादी की लड़ाई में हमारा मार्ग-दर्शन किया। हम उनके जीवन से अनेक बातें सीख सकते हैं। सबसे पहले मैं मोहन से प्रार्थना करता हूँ कि वह गांधीजी के जीवन की कोई घटना बताएँ।"

मोहन ने कहा, "गांधीजी जब छोटे थे तब एक बार वे राजकोट में 'सत्य हरिश्चंद्र' नाटक देखने गए। इस नाटक में दिखाया गया था कि राजा हरिश्चंद्र ने सब प्रकार की तकलीफ़ें सहीं परंतु सत्य को नहीं छोड़ा। इस नाटक का उनके मन पर गहरा प्रभाव पड़ा। रात को घर लौटने पर वे सो न सके, सारी रात सोचते रहे और उसी दिन उन्होंने प्रतिज्ञा की कि वे कभी भी सत्य को नहीं छोड़ेंगे चाहे कुछ भी क्यों न हो जाए। उन्होंने इस प्रण को अपने जीवन में पूरा किया।"

मोहन के बाद सुषमा ने गांधीजी के जीवन की दूसरी घटना इस प्रकार बताई :

"महात्मा गांधी का जन्म राजकोट के एक धनी परिवार में हुआ था। वे अपने माता-पिता का आदर करते थे। बचपन में उन्होंने श्रवण कुमार और हरिश्चंद्र के नाटक देखे थे। *वे सोचा करते थे कि वे श्रवण कुमार और हरिश्चंद्र के समान बनेंगे। परंतु एक बार* उन्होंने चोरी की। घटना इस प्रकार है :

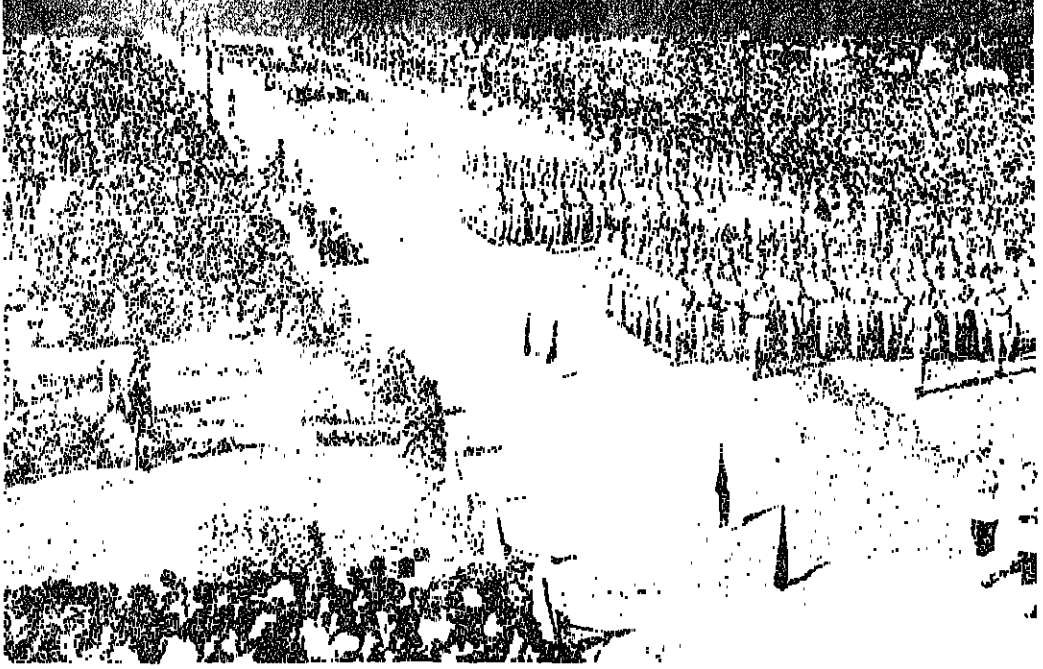
गांधीजी के भाई पर एक दुकानदार के पच्चीस रुपए उधार हो गए। दुकानदार ने अपने रुपए माँगे। भाई के पास न रुपए थे और न पिताजी से माँगने की हिम्मत। दुकानदार ने पिताजी से कहने की धमकी दी। इसलिए भाई ने यह बात गांधीजी को बताई। उनमें भी पिताजी से पैसे माँगने की हिम्मत नहीं थी। कहीं दुकानदार पिताजी से कह न दे, इस डर से गांधीजी ने अपनी माँ के कड़े में से थोड़ा-सा सोना काटा और उसे बाज़ार में बेचकर उधार चुका दिया।

इस चोरी से उनको बहुत दुख हुआ। पिताजी से कहते तो डर लगता था। इसलिए उन्होंने एक पत्र लिखा जिसमें अपना अपराध स्वीकार किया और क्षमा माँगी। गांधीजी ने अपने बीमार पिताजी को डरते-डरते वह पत्र दे दिया। वे स्वयं सज़ा की प्रतीक्षा में पास खड़े रहे। पत्र पढ़कर पिताजी की आँखों में आँसू आ गए। उन्होंने गांधीजी को माफ़ कर दिया। उस दिन उन्होंने प्रण कर लिया कि वे फिर कभी ऐसी ग़लती नहीं करेंगे। जीवनभर उन्होंने अपने इस प्रण का पालन किया।"

राजघाट पर गाँधी-जयंती का एक दृश्य

फिर राकेश ने कहा, "अब सुबोध गांधीजी के जीवन की कोई और घटना बताएँगे।"

सुबोध ने कहा, "गांधीजी के साथ तो हिन्दू, मुसलमान, सिक्ख, ईसाई सभी थे। एक बार एक पठान गांधीजी से किसी कारण नाराज हो गया। गांधीजी अपने कार्य को समाप्त करके घर जा रहे थे। उस पठान ने पीछे से गांधीजी के सिर पर लाठी मारी। गांधीजी बेहोश हो गए। पठान को पुलिस ने पकड़ लिया। जब गांधीजी को होश आया तो लोगों ने पठान के पकड़े जाने की बात बताई। गांधीजी ने पुलिस से उस पठान को छोड़ने के लिए कहा। पठान छोड़ दिया गया। पठान पर इसका बड़ा प्रभाव पड़ा और वह गांधीजी का सच्चा भक्त बन गया। एक दिन उसने गांधीजी से पूछा, "मैंने अपराध किया था, आपने मुझे दंड क्यों नहीं दिलवाया?" गांधीजी ने कहा, "यह तो एक घटना थी, हो गई। कोई भी मनुष्य बुरा नहीं है, 'बुरी है बुराई'।"

राकेश ने सभा समाप्त करते हुए कहा, "गांधी-जयंती के दिन हम राष्ट्रपिता को याद करते हैं। उन्होंने हमें आजादी दिलाई थी। हमें देश की आजादी को बनाए रखने के लिए उनके बताए हुए रास्ते पर चलना होगा। आओ, आज हम सब मिलकर यह प्रण करें।"

अंत में सबने मिलकर राष्ट्रीय गान गाया और सभा समाप्त हुई।

दिल्ली में गणतंत्र दिवस समारोह का एक दृश्य

3. गणतंत्र दिवस—26 जनवरी

15 अगस्त की तरह 26 जनवरी भी भारत का एक राष्ट्रीय त्योहार है। प्रतिवर्ष 26 जनवरी को गणतंत्र दिवस सारे देश में धूम-धाम से मनाया जाता है।

देश के हरएक नगर और गाँव में सभी लोग किसी एक स्थान पर जमा होते हैं और वहाँ राष्ट्रीय झंडे का अभिवादन करते हैं। फ़ौज अथवा पुलिस की परेड होती है। जलसे होते हैं। कहीं-कहीं प्रदर्शनियाँ भी होती हैं। रात को जगह-जगह रोशनी की जाती है।

यह त्योहार भारत की राजधानी—दिल्ली में विशेष उत्साह से मनाया जाता है। इसकी सबसे बड़ी विशेषता फ़ौजी परेड है। फ़ौजी दस्तों का जलूस राजपथ पर राष्ट्रपति को सलामी देता है।

26 जनवरी को सबेरे चार बजे से ही लोग राजपथ तथा अन्य स्थानों पर पहुँचना शुरू कर देते हैं। लोग विशेष रूप से राजपथ पर ही समारोह देखना पसंद करते हैं। इसलिए वहाँ सबसे अधिक भीड़ होती है और विशेष व्यवस्था की जाती है।

सबसे पहले फ़ौजी परेड के कमांडर, एक बड़े फ़ौजी अफ़सर, अपने एक हाथ में

खुली तलवार लिए जीप में आते हैं और राष्ट्रपति को सलामी देते हैं। इनके पीछे टैंक, तरह-तरह की छोटी-बड़ी तोपें, हवाई तोपें, बख़्तरबंद गाड़ियाँ आती हैं। ट्रकों पर लड़ाई का अन्य सामान प्रदर्शित किया जाता है। फिर बैण्ड-बाजों की धुन बजाते सिपाही आते हैं। हमारे जल, थल और वायु सेना के बहादुर सिपाहियों की टुकड़ियाँ राष्ट्रपति के सामने आती हैं, उन्हें सलामी देती हैं और मार्च करती हुई आगे बढ़ जाती हैं।

फ़ौजी दस्तों के पीछे पुलिस, एन.सी.सी. और फिर स्कूल-कालिजों के लड़के-लड़कियों के दल मार्च करते आते हैं। उनकी रंग-बिरंगी पोशाकें सुबह की धूप में चमकती हैं और बड़ी सुहावनी लगती हैं। इसमें तुम जैसे छोटे बच्चे भी भाग लेते हैं।

इस परेड में बड़े-बड़े ट्रकों पर विभिन्न राज्यों की झाँकियाँ भी दिखाई जाती हैं। इन झाँकियों में कभी किसी राज्य का प्रमुख नृत्य, कोई विशेष त्योहार अथवा वहाँ पर हो रहे किसी बड़े काम के दृश्य दिखाए जाते हैं। इन झाँकियों के साथ ही विभिन्न राज्यों से लोक-नर्तकों की टोलियाँ आती हैं। वे सड़क पर ही अपना विशेष नाच दिखाती चलती हैं। अंत में हवाई जहाज़ आते हैं और राष्ट्रपति को सलामी देकर उड़ते हुए चले जाते हैं।

रात को दिल्ली शहर में बड़ी-बड़ी इमारतों पर बिजली की रोशनी होती है। राष्ट्रपति-भवन और संसद-भवन पर तो इसे देखने के लिए हज़ारों की भीड़ जमा हो जाती है।

देश के दूसरे भागों से भी बहुत-से लोग दिल्ली में गणतंत्र दिवस समारोह देखने आते हैं।

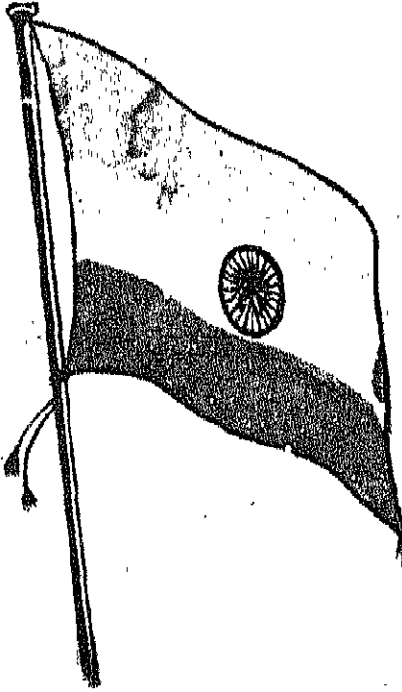
अब बताओ

1. स्वतंत्रता-दिवस, गांधी-जयंती और गणतंत्र दिवस को राष्ट्रीय त्योहार क्यों कहा जाता है ?
2. दिल्ली में स्वतंत्रता-दिवस, गांधी-जयंती और गणतंत्र दिवस किस प्रकार मनाया जाता है ?
3. तुम्हारे नगर अथवा गाँव में राष्ट्रीय त्योहार किस प्रकार मनाए जाते हैं ?
4. गांधी-जयंती क्यों मनाई जाती है ?

कुछ करने को

1. जब स्कूल में स्वतंत्रता-दिवस मनाया जाए तो राष्ट्रीय गान लय से गाओ।
2. गांधीजी के जीवन से संबंधित कहानियाँ पढ़ो।

19. हमारे राष्ट्र के प्रतीक

हर वर्ष हम 15 अगस्त को स्वतंत्रता-दिवस और 26 जनवरी को गणतंत्र दिवस मनाते हैं। इन अवसरों पर सारे देश में राष्ट्रीय झंडा फहराया जाता है और राष्ट्रीय गान गाया जाता है। तुमने नोटों और पैसों पर तीन सिंहवाला चित्र देखा होगा। यही हमारा राष्ट्रीय चिह्न है। राष्ट्रीय झंडा, राष्ट्रीय गान और राष्ट्रीय चिह्न हमारे राष्ट्र के प्रतीक हैं। आओ तुम्हें इनकी जानकारी कराएँ।

राष्ट्रीय झंडा

राष्ट्रीय झंडा तुमने अवश्य देखा होगा। यह झंडा देशभर में सभी सरकारी भवनों पर फहराया जाता है। विदेशों में हमारे दूतावासों पर भी यह लहराता है। राष्ट्रीय त्योहारों के अवसर पर तुमने भी इसे अपने स्कूल में बड़े गर्व और सम्मान के साथ फहराया होगा।

तुम पढ़ चुके हो कि हमारे नेताओं और देश की जनता ने तिरंगे झंडे के नीचे स्वतंत्रता की लड़ाई लड़ी थी। इस तिरंगे के बीच में एक चरखा बना होता था। स्वतंत्रता मिलने पर हमने पुराने तिरंगे झंडे को ही थोड़ा परिवर्तन करके अपना झंडा बना लिया। अब इसमें चरखे के स्थान पर 'चक्र' बना है।

झंडे में तीन रंग की तीन बराबर पट्टियाँ होती हैं। इन पट्टियों की चौड़ाई समान रहती है। सबसे ऊपर की पट्टी का रंग केसरिया और सबसे नीचे की पट्टी का रंग हरा होता है। दोनों के बीच की पट्टी सफ़ेद है। इसी पर 'अशोक चक्र' बना रहता है। यदि

झंडे की लंबाई 15 सैन्टिमीटर हो तो उसकी चौड़ाई 10 सैन्टिमीटर होगी।

राष्ट्रीय झंडा हमारी स्वतंत्रता का प्रतीक है। हम सब इसका सम्मान करते हैं। इसके उपयोग और देखभाल के कुछ आवश्यक नियम हैं। हमें उनका पूरी तरह से पालन करना चाहिए।

राष्ट्रीय ध्वज का उपयोग

राष्ट्रीय झंडा फहराते समय केसरिया रंग की पट्टी हमेशा ऊपर की ओर रहनी चाहिए।

राष्ट्रीय झंडा सूर्योदय से सूर्यास्त तक फहराया जाए। सूर्य के डूबने पर राष्ट्रीय झंडा उतार देना चाहिए।

राष्ट्रीय झंडा चुस्ती के साथ ऊपर चढ़ाया जाना चाहिए, नीचे धीरे-धीरे उतारा जाना चाहिए।

जब राष्ट्रीय झंडा ऊपर उठाया या नीचे उतारा जाता है, तो सब लोगों को शांत खड़े होकर उसका अभिवादन करना चाहिए।

राष्ट्रीय झंडे से ऊँचा और कोई दूसरा झंडा या चिह्न न हो। यदि और झंडे फहराए जाएँ तो वे सब राष्ट्रीय झंडे के बाईं ओर और उससे नीचे हों। राष्ट्रीय झंडा सबसे ऊँचा फहराना चाहिए।

यदि जलूस में राष्ट्रीय झंडा लेकर जाना हो तो दाएँ कंधे पर लेकर सबसे आगे चलना चाहिए।

राष्ट्रीय झंडे को हिफाज़त से रखो। यह मैला न होने पाए और न फटने पाए। फटा हुआ झंडा नहीं फहराना चाहिए।

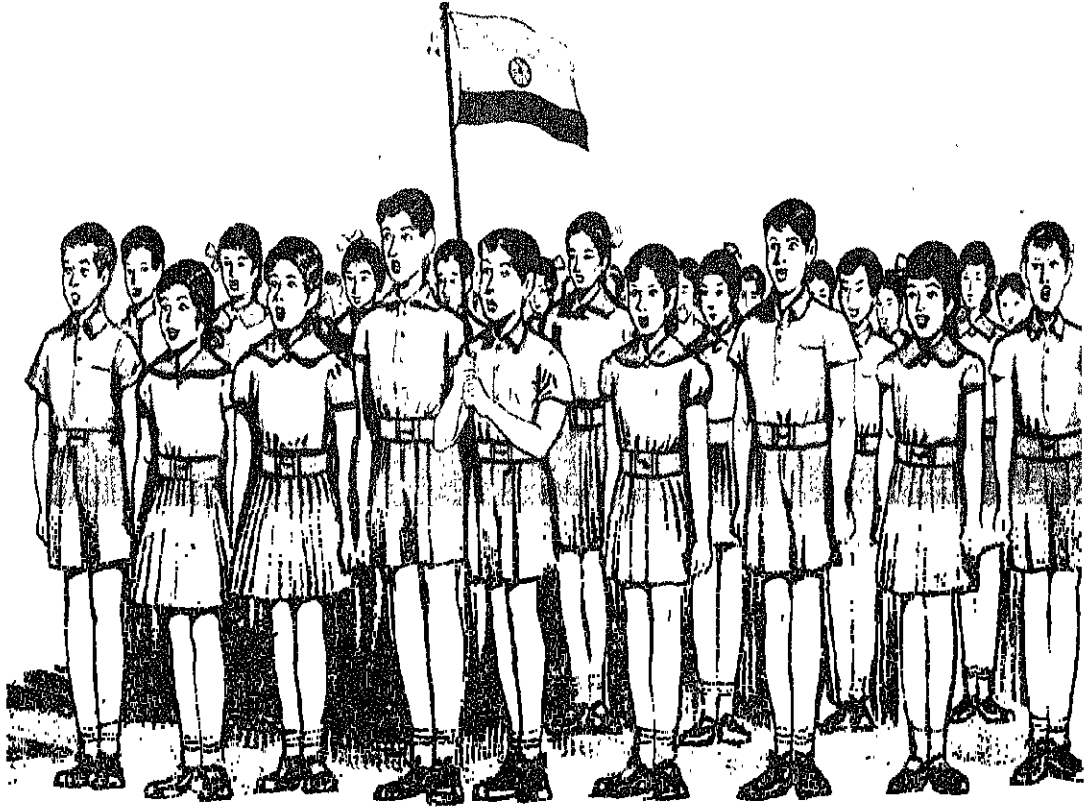
राष्ट्रीय झंडा कभी सजावट के कपड़े की तरह इस्तेमाल नहीं करना चाहिए और न ही उसका प्रयोग व्यापार आदि में करना चाहिए।

राष्ट्रीय झंडा कभी नीचे किसी चीज़ को न छुए, न ही पैरों के नीचे दबना चाहिए।

राष्ट्रीय झंडा हमेशा डंडे की चोटी पर फहराया जाता है। केवल शोक के अवसर पर ही डंडे के आधे भाग पर रहता है।

हर समय, हर जगह, राष्ट्रीय झंडे का सम्मान हो। राष्ट्रीय झंडे का सम्मान राष्ट्र का सम्मान है।

राष्ट्रीय गान

राष्ट्रीय झंडे की तरह हर स्वतंत्र देश का एक राष्ट्रीय गान होता है। हमारा भी एक राष्ट्रीय गान है। यह भी हमारी एकता का चिह्न है। यह गान राष्ट्रीय त्योहारों

और दूसरे बड़े-बड़े उत्सवों पर गाया जाता है या इसकी धुन बैंड पर बजाई जाती है। लड़ाई के मैदान में इसकी धुन सुनकर सिपाही हँसते-हँसते अपनी जान दे देते हैं।

सब लोग अपने राष्ट्रीय गान का आदर करते हैं। जब यह गाया जाता है अथवा इसकी धुन बजाई जाती है तो सुननेवाले अपने स्थान पर सावधान अवस्था में खड़े रहते हैं। जिस समय यह गाया जाता है उस समय न इधर-उधर चलना चाहिए और न बात-चीत ही करनी चाहिए।

आमतौर से राष्ट्रीय गान मिलकर गाया जाता है। तुमने भी स्कूल में स्वतंत्रता-दिवस और गणतंत्र दिवस पर इसे गाया होगा। प्रत्येक बालक-बालिका को यह पूरा याद होना चाहिए, इसकी धुन जाननी चाहिए, जिससे यह ठीक लय में गाया जा सके।

हमारे राष्ट्रीय गान की धुन सुंदर और उसके शब्द प्रभावशाली हैं। इस गीत को हमारे महाकवि रवीन्द्रनाथ ठाकुर ने लिखा था। इस गीत में पाँच पद हैं। परंतु आगे लिखा पहला पद ही गाया जाता है और इसकी ही धुन बजाई जाती है।

जनगणमन-अधिनायक जय हे भारत-भाग्यविधाता।
पंजाब-सिन्धु-गुजरात-मराठा-द्राविड़-उत्कल-बंग,
विन्ध्य-हिमाचल-यमुना-गंगा-उच्छल-जलधितरंग,
तव शुभ नामे जागे, तव शुभ आशिस माँगे,
गाहे तव जयगाथा।
जनगण-मंगलदायक जय हे, भारत-भाग्यविधाता।
जय हे, जय हे, जय हे, जय जय जय, जय हे।

राष्ट्रीय चिह्न

दिए गए चित्र को देखो। यह हमारा राष्ट्रीय चिह्न है। अपने पैसे और नोटों को देखो, उन पर यह चिह्न बना है। भारत सरकार के सभी पत्रों और छापी गई पुस्तकों पर यह चिह्न बना रहता है। इसे हमने 26 जनवरी, सन् 1950 ई० को राष्ट्रीय चिह्न के रूप में अपनाया था।

चित्र में तुम देखोगे कि इस चिह्न में तीन सिंह तीन ओर मुँह किए हुए हैं। वास्तव में ये चार सिंह हैं। चित्र में चौथा सिंह दिखाई नहीं देता है। सिंहों के नीचे बना है चक्र। यही चक्र हमारे राष्ट्रीय ध्वज के नीचे बना है। चक्र के बाईं ओर बना है घोड़ा और दाईं ओर बैल। इसके नीचे लिखा है 'सत्यमेव जयते'। इसका अर्थ है 'सत्य की ही जीत होती है।'

सत्यमेव जयते

तुम सोचते होगे यह चित्र कहाँ से लिया गया और क्यों लिया गया। तुम 'अशोक' के विषय में पढ़ चुके हो। वह केवल महान राजा ही नहीं था, उसने दुनिया-भर में शांति और भाईचारा बनाए रखने के लिए दूर देशों में दूत भेजे थे। अपनी जनता के विचार

और व्यवहार सुधारने के लिए उसने कुछ उपदेश पत्थर की लाटों पर खुदवाए थे। ये लाटें आज भी देश के विभिन्न भागों में मिलती हैं। अशोक ने वाराणसी के समीप सारनाथ में भी एक ऐसी ही लाट बनवाई थी। इसके ऊपर सिंहों की मूर्ति है। हमने इस मूर्ति को राष्ट्रीय चिह्न माना है। अशोक की तरह हम भी शांति चाहते हैं।

अब बताओ

1. राष्ट्रीय झंडा किन-किन अवसरों पर फहराया जाता है ?
2. राष्ट्रीय झंडे में कितने रंग हैं ? इन्हें क्रम से लिखो।
3. राष्ट्रीय गान किन अवसरों पर गाया जाता है ?
4. राष्ट्रीय गान गाते समय किन बातों का ध्यान रखना चाहिए ?
5. राष्ट्रीय चिह्न को ध्यान से देखकर उसका वर्णन करो।
6. राष्ट्रीय चिह्न का कहाँ-कहाँ प्रयोग किया जाता है ?

कुछ करने को

1. पाँच ऐसी विभिन्न चीजें एकत्र करो जिन पर राष्ट्रीय चिह्न हों।
2. राष्ट्रीय झंडे का उचित प्रयोग करना सीखो।

भारत के इतिहास की कहानियाँ

पुस्तक के इस भाग में तुम देश के कुछ महान व्यक्तियों की कहानियाँ पढ़ोगे। ये सब प्रसिद्ध व्यक्ति देश के किसी एक विशेष भाग के ही रहनेवाले नहीं थे। वे देश के विभिन्न भागों में विभिन्न समय में उत्पन्न हुए। सभी लोगों ने मिलकर भारत को महान बनाया और संसार में इसका नाम ऊँचा किया।

आज वे महापुरुष जीवित नहीं हैं। परंतु उनकी कहानियाँ इतिहास की कहानियाँ बन गई हैं। इन कहानियों से हमें उनकी वीरता, साहस और देश-प्रेम का पता चलता है। इनसे हमें यह भी मालूम होता है कि उन्होंने देश को सुंदर बनाने तथा समाज को सुधारने के लिए क्या-क्या कार्य किए। इतना ही नहीं, इन्हीं कहानियों के द्वारा हमें उनके समय के धर्म और रीति-रिवाजों की भी जानकारी मिलती है।

कुछ प्रसिद्ध राजाओं ने लाल किला, कुतुब मीनार, ताजमहल जैसी इमारतें बनवाईं। ऐसे अनेक भवन और पुराने स्मारक देश के भिन्न-भिन्न भागों में देखने को मिलते हैं। दक्षिण भारत में पुराने समय के बहुत-से मंदिर हैं। इनकी बनावट बहुत ही अनोखी है। हमारे पुराने मंदिर तथा भवन देश के उन्नत होने का प्रमाण देते हैं।

20. कृष्णदेव राय

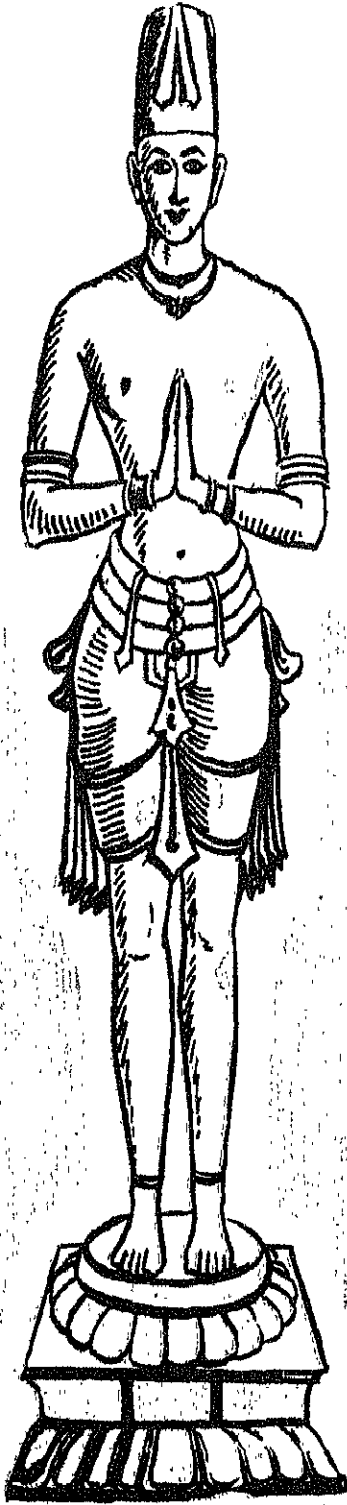
लगभग 500 वर्ष हुए दक्षिण भारत के एक बड़े भाग पर एक बहुत प्रसिद्ध राजा राज करता था। उस राजा का नाम कृष्णदेव राय था। उसके राज्य का नाम विजय-नगर था।

कृष्णदेव राय देखने में बहुत सुंदर नहीं था। उसका कद छोटा था और चेहरे पर चेचक के निशान थे। लेकिन स्वभाव से वह बहुत दयालु था। उसे कला और विद्या से प्रेम था। वह बहुत बहादुर भी था।

लगभग 25 वर्ष की आयु में कृष्णदेव राय राजगद्दी पर बैठा। उस समय उसके राज्य की दशा ठीक नहीं थी। राज्य के सरदार विद्रोह करने की कोशिश कर रहे थे। राज्य को बाहर से भी खतरा था। कृष्णदेव राय ने एक बड़ी सेना इकट्ठी की। इसकी सहायता से उसने अपने आस-पास के राजाओं को हराया। वह अपनी सेना का नेतृत्व स्वयं करता था। वह सेना का बहुत ध्यान रखता था। जब सैनिक युद्ध में घायल होते तो कृष्णदेव राय स्वयं उन सबका हाल-चाल लेता और उनके इलाज का प्रबंध करता।

कृष्णदेव राय की वीरता के विषय में एक कहानी आज भी प्रसिद्ध है। कृष्णदेव राय और बीजापुर का बादशाह दोनों ही रायचूर नामक स्थान पर अपना अधिकार करना चाहते थे। इसके लिए उन दोनों में युद्ध हुआ। युद्धक्षेत्र में कृष्णदेव राय की सेना के पाँव उखड़ने शुरू हो गए। ऐसा जान पड़ता था कि उसकी हार हो जाएगी। ठीक उसी समय अपनी जान की परवाह न कर, राजा स्वयं घोड़े पर बैठ दुश्मन की सेना के बीच घुस गया और उसने बुरी तरह मार-काट शुरू कर दी। घोड़े की पीठ पर चढ़कर उसने सैनिकों को ललकारा और लड़ने के लिए उत्तेजित किया। राजा की वीरता देखकर सैनिक भी जी-जान से लड़ने लगे। देखते-देखते हार जीत में बदल गई।

कृष्णदेव राय केवल योद्धा ही नहीं था, वह कला-प्रेमी भी था। वह अपनी दिनचर्या में रोज कुछ समय निकालकर कविताएँ पढ़ता और लिखता। उसने 'तेलुगु' भाषा में एक पुस्तक भी लिखी। वह कवियों और कलाकारों का आदर किया करता था और उन्हें अपने दरबार में स्थान देता था।

कृष्णदेव राय ने कई मंदिर और मीनार, महल और तालाब बनवाए। कहते हैं

कृष्णदेव राय

उसकी सुंदर राजधानी विजयनगर को देखकर लोग चकित रह जाते थे। आज भी इसके खंडहर मिलते हैं। विदेशी यात्रियों ने भी इसकी प्रशंसा में बहुत कुछ लिखा है। एक यात्री लिखता है: 'इस संसार में विजयनगर के समान सुंदर नगर न तो किसी ने आँखों से देखा है और न कानों से सुना है।' इस नगर में सात दुर्ग थे और एक के बाद एक सात दीवारें थीं। इसके मंदिर और महल तो बहुत ही सुंदर थे। बड़े-बड़े स्तंभोंवाले उसके महल में तरह-तरह की पुस्तकें थीं। जगह-जगह हाथीदाँत का बहुत ही बारीक काम था। दरबार में सोने का काम किया गया था। बाग़, फ़ुहारे आदि महल की शोभा बढ़ाते थे।

कृष्णदेव राय रामनवमी का त्योहार बड़ी धूम-धाम से मनाता था। विजयनगर में इस अवसर पर बड़ा मेला लगता था। दिन में एक जलूस निकलता था, बाज़ार सजाए जाते थे और राजा की सवारी हाथी पर निकलती थी। रात को सारे शहर में रोशनी की जाती और खेल-तमाशे होते।

विजयनगर एक धनवान राज्य था। यहाँ के लोग देश-विदेश में दूर-दूर तक व्यापार करते थे। कई प्रकार की वस्तुएँ दूसरे स्थानों को भेजी जाती थीं। इनमें लोहा, मसाले, दवाइयाँ और हाथीदाँत मुख्य थे। इनके बदले में बाहर से धन आता था। विजयनगर के किसान खेती भी खूब करते थे। स्त्रियों की शिक्षा का अच्छा प्रबंध था और समाज में उनका मान होता था।

कृष्णदेव राय को अपनी प्रजा की भलाई का बहुत ध्यान रहता था। उसके राज्य में लोग जिस धर्म को चाहें, मान सकते थे। उसके सामने सभी बराबर थे।

कृष्णदेव राय ने विजयनगर पर बीस वर्ष तक राज्य किया। वह दक्षिण भारत के बहुत ही योग्य और प्रसिद्ध राजाओं में गिना जाता है।

अब बताओ

1. कृष्णदेव राय कहाँ का राजा था ?
2. उसने रायचूर किस प्रकार जीता ?
3. यह कैसे कहा जाता है कि उसके राज्य में लोग सुखी थे ?
4. कृष्णदेव राय के समय में क्या-क्या चीजें उसके राज्य से बाहर भेजी जाती थीं ?

कुछ करने को

1. अपने अध्यापक की सहायता से विजयनगर राज्य का मानचित्र बनाओ और देखो वर्तमान भारत के कौन-से राज्यों के भाग उसमें शामिल थे।

21. अकबर

एक बार सिंध के रेगिस्तान में अमरकोट के समीप मुग़ल वंश का बादशाह हुमायूँ ठहरा हुआ था। वह शेरशाह से लड़ाई में हार चुका था। थोड़े-से सिपाही और सरदार उसके साथ थे। उसी समय उसे समाचार मिला कि अमरकोट में उसकी बेग़म ने पुत्र को जन्म दिया है। हुमायूँ उस समय कोई ऐसा उत्सव नहीं कर सका जैसा कि एक राजकुमार के जन्म पर होना चाहिए। उसके पास थोड़ी-सी कस्तूरी थी। उसीको उसने अपने साथ के सरदारों में बाँट दिया। कहते हैं उसके सरदारों ने उस समय प्रार्थना की थी कि 'जैसे कस्तूरी की महक दूर-दूर तक फैलती है, राजकुमार का यश भी उसी प्रकार दूर-दूर तक फैले।' यह घटना 400 वर्ष से भी कुछ अधिक पुरानी है। बाद में ऐसा ही हुआ। यही राजकुमार आगे चलकर अकबर के नाम से प्रसिद्ध हुआ और भारत का एक महान सम्राट कहलाया।

कुछ समय के बाद हुमायूँ के अच्छे दिन आए। वह फिर एक बार बादशाह बन गया, किन्तु शीघ्र ही उसकी मृत्यु हो गई। उस समय अकबर केवल तेरह वर्ष का था। वह देश का बादशाह बना दिया गया। तेरह वर्ष का बालक भला कैसे राज्य की बागडोर सँभालता? एक बड़ा सरदार बैरमखाँ उसका संरक्षक बना और राजकाज चलाने लगा।

उस समय चारों ओर अकबर के शत्रु ही शत्रु थे। सबसे बड़ा शत्रु हेमूँ था। अकबर और हेमूँ का पानीपत के मैदान में घमासान युद्ध हुआ। एक तीर हेमूँ की आँख में आकर लगा। वह बेहोश होकर अपने हाथी से गिर पड़ा। हेमूँ को कैद करके उसकी हत्या कर दी गई।

सतरह-अठारह साल की उम्र में ही अकबर ने राज्य की बागडोर अपने हाथ में ले ली। उसने बैरमखाँ को हज की यात्रा पर भेज दिया। जब अकबर बादशाह बना, तो उसके अधिकार में देश का थोड़ा-सा हिस्सा था। उसने बहुत-सी लड़ाइयाँ जीतीं। छोटे-बड़े राजा-सरदारों को हराकर उसने भारत में एक बड़ा साम्राज्य स्थापित किया।

इतने विशाल साम्राज्य पर अकबर ने बड़ी कुशलता से शासन किया। उसने अपने एक मंत्री राजा टोडरमल की सहायता से खेती के योग्य सारी धरती को नपवाया, कर वसूल करने की व्यवस्था बनाई और सिंचाई का प्रबंध किया। जनता के सुख के लिए उसने सड़कें और सराएँ बनवाईं तथा बाग़ लगवाए। उसके राज्य में शांति थी और प्रजा सुखी थी।

अपने पिता की मुसीबतों के कारण बचपन में अकबर पढ़ना-लिखना नहीं सीख पाया था। बड़े होकर उसने यह कमी स्वयं पूरी कर ली। जो पुस्तकें वह नहीं पढ़ सकता था, उन्हें विद्वानों से पढ़वाकर सुनता और उनपर उनसे बातचीत करता था। इस तरह उसने ज्ञान प्राप्त कर लिया था। उसका एक अच्छा पुस्तकालय था। उसने यूनानी, अरबी, तुर्की और संस्कृत से फ़ारसी में पुस्तकों का अनुवाद कराया। इन पुस्तकों में रामायण और महाभारत मुख्य हैं।

अकबर ने कई बड़ी-बड़ी सुंदर इमारतें बनवाईं। उनमें से बहुत-सी इमारतें आज भी मौजूद हैं, जैसे आगरा के समीप सिकंदरा में उसका मकबरा, आगरे का किला और फतेहपुर सीकरी में बुलंद दरवाज़ा, सलीम चिश्ती की दरगाह, पंचमहल, इबादतखाना आदि।

अकबर का विश्वास था कि सभी धर्मों में सच्चाई है। उसके इबादतखाने में पंडित, मौलवी, पादरी, जैन साधु आदि इकट्ठे होते थे और अपने-अपने धर्म की चर्चा करते थे। अकबर सब धर्मों का आदर करता था। सभी धर्मों की अच्छी-अच्छी बातों को मिलाकर उसने अपना मत चलाया, जिसे 'दीने-इलाही' कहते हैं। अकबर विभिन्न धर्मों के सिद्धांतों में सदा रुचि लेता था।

अकबर ने हिन्दुओं से बहुत अच्छा बर्ताव किया। वह चाहता था कि उसके राज्य में सब लोग मिल-जुलकर रहें। उसने हिन्दुओं को धर्म की स्वतंत्रता दी। राजपूत राजाओं को ऊँचे-ऊँचे पद दिए। अकबर ने राजा भारमल की बेटी राजकुमारी जोधाबाई से विवाह किया। उसके दरबार में भगवानदास, मानसिंह आदि कई राजपूत सरदार थे। इस तरह अकबर ने हिन्दुओं और विशेषकर राजपूतों से मित्रता बढ़ाई।

अकबर के समय में देश में साहित्य, संगीत और दूसरी कलाओं की बहुत उन्नति हुई। वह कलाकारों का बहुत आदर करता था। उसके दरबार में कई कवि, लेखक और

संगीतकार थे। अबुल फज़ल और फ़ैज़ी फ़ारसी भाषा के बहुत बड़े विद्वान थे। अकबर की जीवनी 'अकबरनामा' अबुल फज़ल ने ही लिखी थी। फैज़ी ने 'गीता' का फ़ारसी में अनुवाद किया। रहीम खानखाना बैरमखाँ के पुत्र थे। वे कई भाषाएँ जानते थे। वे हिन्दी और फ़ारसी, दोनों भाषाओं के कवि थे। इतिहासकार अबुल फज़ल, संगीतकार तानसेन और कवि बीरबल अकबर के मित्र थे। अकबर के समय में ही सूर ने 'सूरसागर' और तुलसी ने 'रामचरितमानस' की रचना की। ये दोनों हिन्दी साहित्य के प्रसिद्ध ग्रंथ हैं।

अकबर एक उदार, वीर और योग्य शासक था। वह भारत के महान सम्राटों में गिना जाता है।

अब बताओ

1. अकबर का जन्म कहाँ हुआ था ? हुमायूँ ने अपने पुत्र के जन्म का अवसर किस प्रकार मनाया ?
2. बैरमखाँ कौन था ? उसे हज की यात्रा पर क्यों भेजा गया ?
3. अकबर ने इबादतखाना किसलिए बनवाया था ?
4. अकबर ने राजपूतों को किस प्रकार मित्र बना लिया ?
5. नीचे एक कालम में अकबर के समय के कुछ व्यक्तियों के नाम दिए हुए हैं। दूसरे कालम में इन व्यक्तियों से संबंधित कुछ कथन दिए हैं। व्यक्ति के नाम के आगे उससे संबंधित सही कथन का नंबर कोष्ठक में लिखो :

( ) अबुल फज़ल	1. रामचरितमानस की रचना की।
( ) सूरदास	2. खेती के कर की उचित व्यवस्था की।
( ) तुलसीदास	3. अकबरनामा लिखा।
( ) टोडरमल	4. सूरसागर लिखा।
( ) तानसेन	5. फ़ारसी और हिन्दी का कवि।
( ) रहीम खानखाना	6. संगीतकार।

कुछ करने को

1. अपने अध्यापकजी से अकबर के बारे में कोई रोचक कहानी सुनो।
2. अकबर द्वारा बनाई गई इमारतों के चित्र एकत्र करो और अपने अलबम में लगाओ।

22. शिवाजी

लगभग 300 वर्ष पहले की बात है। आगरे में एक कैदखाने के सामने भिखमंगों की बड़ी भीड़ लगी थी। उन्हें मिठाई और पूरियाँ बाँटी जा रही थीं। उन्हें भरपेट मिठाई खिलाने का आदेश था। टोकरे पर टोकरे मिठाइयाँ जा रही थीं। इसी समय तीन-चार सेवक जेल के अंदर से टोकरे सिर पर रखकर निकले और उस भीड़-भाड़ में आगे बढ़ते चले गए। किसी ने उन्हें रोका-टोका नहीं। इस प्रकार एक टोकरे में छिपकर चतुर शिवाजी दिल्ली के मुग़ल बादशाह औरंगज़ेब की कैद से निकल भागे।

शिवाजी बचपन से ही बड़े तेज़, चतुर और साहसी थे। बचपन में उनकी शिक्षा ठीक ढंग से न हो पाई थी। उनकी माता जीजाबाई ने उन्हें रामायण और महाभारत की कथाएँ और गुरु कोण्डदेव ने साहस और वीरता की कहानियाँ सुनाई थीं। उन्होंने तैरने, घुड़सवारी करने और हथियार चलाने में भी कुशलता प्राप्त की। उस समय देश में तीर, बरछे, तलवार और कटार तो थे ही, तोपें और बंदूकें भी काम में लाई जाती थीं। वे इन सब का प्रयोग करना जानते थे और एक अच्छे सैनिक थे।

इस समय महाराष्ट्र के कुछ भाग पर बीजापुर के सुलतान का और कुछ पर दिल्ली के बादशाह औरंगज़ेब का अधिकार था। शिवाजी के पिता बीजापुर के सुलतान के दरबार में नौकर थे। शिवाजी को यह अच्छा न लगता था। सतरह-अठारह वर्ष के होते ही शिवाजी ने आज़ादी की बात सोचनी शुरू कर दी। उन्होंने शीघ्र ही मराठों की एक छोटी-सी सेना बना ली। अपनी सेना को उन्होंने बड़ी-बड़ी फ़ौजों के साथ छापामार लड़ाई लड़ने की शिक्षा दी। सबसे पहले उन्होंने पूना के दक्षिण में तोरणा नाम के दुर्ग पर अधिकार कर लिया। वहाँ उन्हें बहुत-सा धन और हथियार मिले। इसके बाद उन्होंने रायगढ़ में अपना दुर्ग भी बना लिया। शिवाजी ने धीरे-धीरे कई एक दुर्ग और जीते।

बीजापुर के शासक ने शिवाजी की शक्ति नष्ट करने के कई उपाए किए लेकिन वे सब व्यर्थ हुए।

इस तरह सफलता पाने पर शिवाजी ने मुग़लों पर भी हमला करना शुरू कर दिया। शिवाजी की बढ़ती हुई शक्ति को देखकर औरंगज़ेब को बड़ी परेशानी हुई। उसने अपने मामा शाईस्ताखाँ को बहुत बड़ी सेना देकर पूना भेजा। शाईस्ताखाँ ने पूना पहुँचकर शिवाजी का बहुत-सा इलाका जीत लिया। बरसात के दिन थे। शाईस्ताखाँ पूना में आराम करने लगा। शिवाजी अपने सैनिकों को लेकर एक बरात के रूप में पूना शहर में घुसे। बरात में बड़ी धूम-धाम थी। बराती बनकर सिपाही पालकियों में सवार थे। पालकी उठानेवाले भी मराठा सैनिक थे। किसी को शक भी नहीं हुआ कि यह बरात शिवाजी की फ़ौज थी। शिवाजी अपने खेमों में आराम करती मुग़ल सेना पर अचानक टूट पड़े। शाईस्ताखाँ की फ़ौज में भगदड़ मच गई। बहुत-से मुग़ल सैनिक मारे गए। शाईस्ताखाँ बड़ी मुश्किल से जान बचाकर भागा।

शिवाजी छापामार तरीक़े से युद्ध करते थे। वह अपनी फ़ौज के साथ अचानक ही शत्रु पर टूट पड़ते थे और लूटमार करके पहाड़ी इलाकों में छिप जाते थे।

अब औरंगज़ेब ने शिवाजी को लड़ाई से नहीं, बल्कि चालाकी से अपने बस में करना चाहा। उसने शिवाजी से मित्रता करने की इच्छा प्रकट की। शिवाजी औरंगज़ेब के दरबार में जाने के लिए राज़ी हो गए। जब आगरा में शिवाजी औरंगज़ेब के दरबार में पहुँचे तो औरंगज़ेब ने उनको छोटे अधिकारियों के बीच बैठाकर उनका अपमान किया। शिवाजी ने भरे दरबार में अपने अपमान की शिकायत कठोर शब्दों में की। इस पर उन्हें कैद कर लिया गया।

शिवाजी बहुत चतुर थे। उन्होंने साहस नहीं छोड़ा। कैद में उन्होंने बहाना किया कि वे बीमार हैं। इसलिए ब्राह्मणों आदि को दान करने के लिए उन्होंने मिठाइयाँ मँगवाईं। इन्हीं मिठाइयों के टोकरे में बैठकर शिवाजी औरंगज़ेब की कैद से निकल भागे थे। उनकी प्रजा उनके वापस आने पर बहुत प्रसन्न हुई। इस घटना के बाद शिवाजी ने रायगढ़ में बड़ी धूमधाम से 'राजा' की पदवी धारण की। तब से 'छत्रपति शिवाजी' कहलाने लगे।

शिवाजी न केवल एक वीर सैनिक बल्कि एक दयालु शासक भी थे। वे अपने मंत्रियों की सहायता से राज करते थे। शिवाजी मुग़लों से तो लड़ते थे लेकिन मुसलमान प्रजा से उनकी कोई लड़ाई नहीं थी। वे इस्लाम धर्म का आदर करते थे। जब भी कभी युद्ध में मुसलमान स्त्रियाँ या पवित्र कुरान उनके सिपाहियों के हाथ आते तो वे बड़े आदर से

उन्हें वापस लौटा देते थे। शिवाजी एक योग्य और वीर राजा थे। हम उन्हें आदर के साथ याद करते हैं।

अब बताओ

1. बचपन में शिवाजी की शिक्षा किस प्रकार हुई थी ?
2. कुछ ऐसी घटनाओं का वर्णन करो जिनसे शिवाजी के चतुर होने का प्रमाण मिलता है।
3. शिवाजी का अपने राज्य में रहनेवाले दूसरे धर्मों के लोगों के साथ कैसा व्यवहार था ?
4. शिवाजी का युद्ध करने का क्या तरीक़ा था ?
5. नीचे शिवाजी के विषय में कुछ बातें लिखी हैं। इनमें से सही बातों पर निशान (✓) लगाओ :

   ( ) शिवाजी की शिक्षा विद्यालय में हुई थी।

   ( ) शिवाजी दूसरे धर्म की पुस्तकों का आदर करते थे।

   ( ) गुरु कोण्डदेव ने शिवाजी को धनुर्विद्या और घुड़सवारी की शिक्षा दी थी।

   ( ) शिवाजी ने पूना में राजा की पदवी धारण की।

कुछ करने को

1. शिवाजी का औरंगज़ेब के दरबार में जाने और उसकी कैद से निकल भागने का नाटक खेलो।
2. शिवाजी के बारे में भूषण कवि के लिखे कुछ सवैये एकत्र करो।

23. रणजीत सिंह

दस वर्ष का एक निडर और बहादुर बालक एक बार अपने पिता के साथ लड़ाई के मैदान में गया। युद्ध हो रहा था। दुश्मन के एक सैनिक ने उसे मारने के लिए तलवार का वार किया। यह बहादुर बालक फुर्ती से अपने को बचा गया और उसने तुरंत अपने ऊपर वार करनेवाले सैनिक को मार गिराया। इस वीर बालक का नाम था रणजीत सिंह। लगभग डेढ़ सौ वर्ष पहले वह पंजाब का प्रसिद्ध राजा बना।

रणजीत का जन्म गुजराँवाला में हुआ था। यह स्थान आजकल पश्चिमी पाकिस्तान में है। रणजीत सिंह के पिता महासिंह एक सरदार थे। छोटी आयु में ही रणजीत सिंह को कई मुसीबतों का सामना करना पड़ा। बचपन में ही चेचक के रोग में इनकी एक आँख जाती रही। बारह वर्ष की आयु में इनके पिता की मृत्यु हो गई। उनकी शिक्षा तक ठीक से न हो पाई थी कि पिता का सारा भार उनके ऊपर आ पड़ा।

पंजाब इस समय छोटे-छोटे राज्यों में बँटा था। उनमें आपस में लड़ाई होती रहती थी। रणजीत सिंह ने धीरे-धीरे अपनी शक्ति बढ़ा ली और आपस में लड़नेवाले सब दलों को दबाकर पंजाब में एक बड़ा राज्य बना लिया। रणजीत सिंह ने अपनी सेना को अंग्रेज़ी सेना की तरह शिक्षा दिलवाई थी। अंग्रेज़ी सेना की तरह ही रणजीत सिंह की सेना कवायद करती, कदम मिलाकर मार्च करती और हथियार चलाती थी।

रणजीत सिंह पढ़-लिख तो नहीं सकते थे, लेकिन उनकी बुद्धि बहुत तीव्र थी। उन्हें अपने कर्मचारियों के बारे में सब कुछ याद रहता था। कहा जाता है कि अपने राज्य के सभी गाँवों के बारे में रणजीत सिंह को पूरी-पूरी जानकारी थी। रणजीत सिंह विद्वानों का बहुत आदर करते थे।

रणजीत सिंह प्रजा की भलाई का बहुत अधिक ध्यान रखते थे। वे सभी धर्मों का आदर करते थे। उनके सबसे विश्वासी मंत्री अज़ीज़ुद्दीन मुसलमान धर्म के थे। उनके मंत्रिमंडल में सभी धर्मों के लोग थे। रणजीत सिंह बहुत ही सादे स्वभाव के राजा थे। वे न तो ताज पहनते थे न ही सिंहासन पर बैठते थे। उन्होंने कभी भी कोई उपाधि ग्रहण नहीं की। उन्हें लोग प्यार से 'महाराजा' कहते थे।

पंजाब के घर-घर में रणजीत सिंह की बहादुरी और न्याय की कहानियाँ आज भी कही जाती हैं। नीचे लिखी कहानी तो काफ़ी प्रसिद्ध है :

एक बार आनंदपुर नगर में अन्न की कमी हो गई थी। नगर में रहनेवालों को राजा की ओर से अन्न दिया जाता था। एक ग़रीब बुढ़िया राज-भंडार में देर से पहुँची। उसे अन्न न मिला। वह रोने लगी। इतने में एक सरदार उधर से निकला। उसे बुढ़िया पर दया आ गई। उसने बुढ़िया को अन्न दिलवाया। लेकिन बुढ़िया से भारी गठरी लेकर चला न जाता था। उस सरदार ने बुढ़िया की गठरी उठाई और चल दिया। बुढ़िया आगे-आगे जा रही थी और वह पीछे-पीछे। उसने अन्न की गठरी उस बुढ़िया के घर पहुँचाई।

बुढ़िया ने पूछा, "बेटा तुम्हारा नाम क्या है ?" "बस मुझे अपना बेटा ही समझो," सरदार ने कहा। "फिर माँ को नाम तो बता दो," बुढ़िया ने कहा। "मुझे रणजीत सिंह कहते हैं, माँ," सरदार बोला। बुढ़िया सुनकर काँपने लगी। क्षमा माँगती कहने लगी, "मुझे मालूम नहीं था कि आप महाराजा रणजीत सिंह हैं।" "माँ, मैं राजा हूँ तो क्या ? मुझे प्रजा की सेवा करनी है। मैं देश पर तो राज करता ही हूँ, मुझे लोगों के दिलों पर भी राज करना है।" ऐसे थे महाराजा रणजीत सिंह।

उन्हें लोग शेर-ए-पंजाब भी कहते हैं।

अब बताओ

1. रणजीत सिंह की बचपन में शिक्षा क्यों न हो पाई थी ?
2. रणजीत सिंह एक बड़े राजा कैसे बन गए ?
3. रणजीत सिंह अपनी प्रजा के लिए क्या करते थे ?
4. लोग रणजीत सिंह को प्यार क्यों करते थे ?

कुछ करने को

1. रणजीत सिंह के बारे में कुछ अन्य कथाएँ सुनो और उन्हें कक्षा में सुनाओ।
2. पाठ में दी गई रणजीत सिंह की कहानी का अभिनय कक्षा में करो।

24. राजा राममोहन राय

आज से लगभग डेढ़ सौ वर्ष पहले की बात है। एक पुरुष की मृत्यु हुई। उसका शव श्मशान घाट ले जाया गया। लोग उसकी पत्नी को भी खींचकर श्मशान भूमि ले गए। उसे जीवित ही उसके पति की चिता पर ज़बरदस्ती बिठा दिया गया। उसके पति के भाई को यह जानकर बड़ा दुख हुआ। उसने 'सती' की इस भयानक प्रथा को समाप्त करने का निश्चय किया। यह महान पुरुष राजा राममोहन राय थे।

राजा राममोहन राय बंगाल के एक ज़मींदार घराने में पैदा हुए थे। घर पर थोड़ी-बहुत शिक्षा पाने के बाद वे अपने चाचा के पास पटना चले गए। उस समय पटना में फ़ारसी की शिक्षा का बहुत अच्छा प्रबंध था। कठिन परिश्रम करके उन्होंने अच्छी शिक्षा प्राप्त की। हिन्दू धर्म के अलावा इस्लाम धर्म की भी उन्हें अच्छी जानकारी थी। वे बंगला, हिन्दी, संस्कृत, अरबी, फ़ारसी, अंग्रेज़ी, लैटिन आदि कई भाषाएँ अच्छी तरह जानते थे।

धर्म में उनकी बड़ी श्रद्धा थी, किन्तु धर्म के नाम पर समाज में होनेवाली बुराइयों का वे विरोध करते थे। इसी कारण उनके पिता ने उनको घर से निकाल दिया। उस समय उनकी आयु सोलह-सतरह वर्ष की थी। घर से निकाले जाने पर वे कई जगह गए और अध्ययन करते रहे।

राजा राममोहन राय ने 'सती-प्रथा' के विरुद्ध आंदोलन चलाने का निश्चय किया। इन्हीं के प्रयत्नों के कारण सरकार ने सती-प्रथा के विरुद्ध कानून बनाया और यह प्रथा धीरे-धीरे समाप्त हो गई। राजा राममोहन राय ने विधवाओं के पुनर्विवाह का प्रचार किया। उन्होंने समाज में विधवाओं की दशा सुधारने के लिए और भी कई काम किए।

वे ऊँच-नीच की भावना को बुरा समझते थे और मूर्ति-पूजा के विरोधी थे। अपने विचारों को फैलाने के लिए उन्होंने कलकत्ते में 'ब्राह्म-समाज' की स्थापना की।

राजा राममोहन राय ने देशवासियों की शिक्षा के लिए भी बहुत काम किया। वे चाहते थे कि भारतवासी अंग्रेज़ी पढ़ें और विज्ञान की शिक्षा प्राप्त करें, क्योंकि इससे ही भारत जैसा पिछड़ा देश उन्नति कर सकता है। उस समय अंग्रेज़ी सरकार हिन्दुओं और मुसलमानों के लिए केवल संस्कृत, अरबी और फ़ारसी भाषाओं की शिक्षा का प्रबंध करती थी। राजा राममोहन राय की चेष्टा से देश में अंग्रेज़ी शिक्षा का प्रचार आरंभ हुआ। उनके प्रयत्नों से कलकत्ता में 'हिन्दू कालेज' स्थापित हुआ। अब इसे 'प्रेसीडेन्सी कालेज' कहते हैं।

भारत में उस समय मुग़ल राज्य लगभग समाप्त हो चुका था और अंग्रेज़ी राज्य बढ़ता जा रहा था। मुग़ल बादशाह ने राममोहन राय को इंग्लैण्ड इसलिए भेजा कि वे वहाँ जाकर अंग्रेज़ सरकार के सामने उनके खोए हुए अधिकारों की माँग करें। वे लगभग तीन वर्ष तक इंग्लैण्ड में रहे और वहीं उनका स्वर्गवास हो गया।

राजा राममोहन राय अपने समय के सबसे बड़े समाज-सुधारक थे। उन्होंने अपना सारा जीवन समाज-सुधार के काम में लगा दिया। वे कहते थे कि जब तक भारत के लोग पुराने विचारों के बंधन न तोड़ेंगे और नई शिक्षा प्राप्त नहीं करेंगे, देश कभी उन्नति नहीं कर सकेगा। राजा राममोहन राय ने भारतवासियों को उन्नति का मार्ग दिखाया।

अब बताओ

1. राजा राममोहन राय कब पैदा हुए थे ?
2. वे भारतीयों को अंग्रेज़ी शिक्षा क्यों दिलाना चाहते थे ?
3. हम राजा राममोहन राय को एक बड़ा समाज-सुधारक क्यों कहते हैं ?
4. ब्राह्म-समाज की स्थापना क्यों की गई ?
5. भारतीय नारी की दशा सुधारने के लिए राजा राममोहन राय ने क्या किया ?

कुछ करने को

1. अपने को राजा राममोहन राय मानकर पाठशाला की बाल सभा में उस समय की कुरीतियों के विरोध में एक भाषण दो।
2. अपने अध्यापक जी से स्वामी दयानंद की कहानी सुनाने की प्रार्थना करो।

जानने योग्य कुछ बातें

भारत का क्षेत्रफल	3,276,141	वर्ग कि. मी.
पश्चिम से पूर्व तक अधिकतम दूरी (गुजरात राज्य की पश्चिमी सीमा से नागालैण्ड राज्य की पूर्वी सीमा तक की दूरी)	3,000	कि. मी.
उत्तर से दक्षिण तक की अधिकतम दूरी (जम्मू व कश्मीर राज्य की उत्तरी सीमा से दक्षिण में कुमारी अंतरीप तक की दूरी)	3,200	कि. मी.
भारत के समुद्रतट की लंबाई	5,700	कि. मी.

हिमालय की दस चोटियाँ

चोटी का नाम	ऊँचाई
एवरेस्ट	8848 मीटर
के2	8611 ,,
कनचिनजुंगा	8598 ,,
मकालू	8481 ,,
धौलगिरि	8172 ,,
चो-यू	8153 ,,
नंगा पर्वत	8126 ,,
अन्नपूर्णा	8078 ,,
नंदा देवी	7817 ,,
चोमो ल्हारी	7314 ,,

भारत की प्रमुख नदियाँ

ब्रह्मपुत्र	2900 किलोमीटर लंबी
गंगा	2510 ,, ,,
गोदावरी	1450 ,, ,,
नर्मदा	1290 ,, ,,
कृष्णा	1290 ,, ,,
महानदी	890 ,, ,,
कावेरी	760 ,, ,,

भारत की प्रमुख भाषाएँ

1. असमिया
2. उड़िया
3. उर्दू
4. कन्नड़
5. कश्मीरी
6. गुजराती
7. तमिल
8. तेलुगु
9. पंजाबी
10. बंगला
11. मराठी
12. मलयालम
13. संस्कृत
14. सिन्धी
15. हिन्दी

भारत के कुछ प्रमुख औद्योगिक नगर

नगर	राज्य	मुख्य उद्योग
नूनमती	असम	खनिज तेल साफ़ करने का कारखाना
सिकंदराबाद	आंध्र प्रदेश	रक्षा संबंधी हथियारों का कारखाना
विशाखापटनम	,,	समुद्री जहाज़ बनाने का कारखाना, खनिज तेल साफ़ करने का कारखाना
राउरकेला	उड़ीसा	लोहा-इस्पात और खाद का कारखाना
कानपुर	उत्तर प्रदेश	ऊनी कपड़ा, सूती कपड़ा, चमड़ा और हवाई जहाज़

नगर	राज्य	मुख्य उद्योग
वाराणसी	उत्तर प्रदेश	रेल के डीज़ल इंजन
गोरखपुर	,, ,,	खाद बनाने का कारखाना
अलवाय	केरल	अल्मिनियम, यूरेनियम और थोरियम निकालने का कारखाना
कोचीन	,,	समुद्री जहाज़ बनाने का कारखाना
अहमदाबाद	गुजरात	सूती कपड़ा तथा रेयन
जामनगर	,,	ऊनी कपड़ा
कोयली	,,	खनिज तेल साफ़ करने का कारखाना
बड़ौदा	,,	दवाइयाँ
श्रीनगर	जम्मू-कश्मीर	रेशमी कपड़ा
दिल्ली	दिल्ली	डी. डी. टी., सूती कपड़ा
अमृतसर	पंजाब	ऊनी कपड़ा
लुधियाना	,,	मोज़े, बनियान आदि
नंगल	,,	खाद बनाने का कारखाना
कलकत्ता	पश्चिमी बंगाल	पटसन, दवाइयाँ, मोटर गाड़ी, वैज्ञानिक यंत्र
चित्तरंजन	,,	रेल के इंजन
दुर्गापुर	,,	लोहा-इस्पात और खाद का कारखाना
रूपनारायणपुर	,,	टेलीफ़ोन के तार
जमशेदपुर	बिहार	लोहा-इस्पात
बोकारो	,,	लोहा-इस्पात
राँची	,,	भारी मशीन और उनके पुर्ज़े
सिन्दरी	,,	खाद का कारखाना
बरौनी	,,	खनिज तेल साफ़ करने का कारखाना
मद्रास	तमिलनाडु	सीमेण्ट, मोटर गाड़ियाँ, चमड़े का सामान
पैरंबूर	,,	रेल के डिब्बे
कोयंबतूर	,,	सूती कपड़ा
ओत्तकमंदु	,,	फ़ोटो फ़िल्म
नैवेली	,,	खाद बनाने का कारखाना

नगर	राज्य	मुख्य उद्योग
भोपाल	मध्य प्रदेश	बिजली का भारी सामान
भिलाई	,,	लोहा-इस्पात
नेपानगर	,,	अख़बारी कागज़
बंबई	महाराष्ट्र	सूती कपड़ा, नकली रेशम, मोटरगाड़ियाँ, दवाइयाँ
ट्रांबे	,,	खनिज तेल साफ़ करने का कारखाना
पूना	,,	दवाइयाँ
शोलापुर	,,	सूती कपड़ा
बंगलौर	कर्नाटक	हवाई जहाज़, टेलीफ़ोन, घड़ियाँ, मशीनें और अन्य औज़ार
भद्रावती	,,	लोहा-इस्पात और सीमेण्ट
सोनीपत	हरियाणा	साइकिलें
जगाधरी	,,	कागज़ और चीनी
नाहन	हिमाचल प्रदेश	कृषि के औज़ार, चीनी बनाने की मशीनों का कारख़ाना

Women's dress was more varied than that of men. It consisted also of two garments, but these were longer and fuller. Sometimes there were sleeves, and there was always a girdle. The Athenian woman wore her hair in a loose knot at the back or on the top of her head, and secured it with ribbons. Altogether her dress was graceful and becoming.

It must not be supposed that all these garments were white They were sometimes coloured purple, red, and green Yellow, however, was used only by women There were also fashions in cloaks, shoes, and hats, but the majority of the citizens wore the plain white woollen mantle, which was admirably suited to the warm and sunny climate

Hats were rarely worn except by travellers in the country The simplest form of foot covering was the sandal, but there were also various forms of shoes and boots The boots were worn in travelling and hunting; black, white or red shoes were often used by guests going to a dinner party

A typical citizen would wear a seal ring, partly for ornament and partly for use, and he would usually carry a stick when out walking

The men.—It was customary to rise at daybreak and literally to "break the fast" with a few crusts of bread dipped in wine Nothing more was eaten till the midday meal. A citizen visited his best friends at sunrise When he went to the market he was accompanied by one or two slaves, who acted as carriers or errand-bearers. He would pass down between various colonnades among the statues of gods and famous men, and under the plane trees The markets were arranged much as they are in England and elsewhere to-day At dawn the countrymen brought in supplies of wine and vegetables for the retail dealers of the stalls Each section of the market was given to special commodities, thus a buyer would know where to go for bread, fish, cheese, vegetables, oil, etc The market would resound with the cries of the vendors as they shouted their wares. Fish was a highly important article of food, and when a fresh catch arrived at the market a bell was rung to notify the would-be purchasers.

After visiting the market and doing any other business he might have on hand, the citizen would go where he was certain to meet friends with whom he could converse on the news of the day, politics, or philosophic matters Perhaps he would stroll in the colonnades, or go to the gymnasium for a bath, or to the shops of the barbers, perfumers, shoemakers, doctor's waiting room, or some such place, where it was customary to go to meet one's friends. It should be noted that the Athenians of this time had not usually the elaborate baths which are associated with the Romans For the most part a man took cold baths at a public place piecemeal from a large vessel on a stand An attendant poured water over him from a bronze or earthenware vessel After rubbing off the moisture the bather anointed himself with scented olive oil and afterwards scraped himself with a curved bronze instrument, called a *strigil.* (See blackboard sketch)

Military service.—Men were liable to military service from the ages of eighteen to sixty There was no regular uniform, but each man supplied his own armour and equipment according to his fancy The outfit described in the children's story is that of a well-to-do citizen There were only about a thousand cavalry in the Athenian army The poorer foot soldiers had to be content with a sword and javelin, and a light shield of wood or wickerwork. They might have no shield at all, and fight with bow and arrows, sling or spear

There was a navy of some three hundred or four hundred warships. In addition to sails the vessels were rowed by two or three banks of oarsmen, some of whom were Athenians, but most of whom were foreigners and slaves There was no regular navy, but the ships were commanded by the rich citizens who equipped them Each ship, however,

had experienced sailors on board, and the great strength of Athens lay in her navy.

The women.—At Athens, more than anywhere else in Greece, the woman was confined mainly to the house A girl might learn to read and write and play a musical instrument, but it was not considered necessary for her to do so. Her whole business was to learn her domestic duties, to spin, weave and work embroidery, and teach and direct her slaves. She rarely left the house and then only in company of an elder female

She had little opportunity for falling in love, and her marriage, which might take place anywhere between the ages of fifteen and twenty, was arranged by her father, or guardian, who was prepared to give her a dowry. A solemn "pledging" was made before witnesses when the amount of the dowry was agreed upon, and the only ceremony was the "fetching home," which took place some time after the "pledging," at nightfall by torchlight. The groom, wearing a wreath, arrived with his parents, friends and best man at the home of the bride, which was decorated at the door with olive boughs Men and women on this occasion partook together of the wedding feast, which included a cake made chiefly of sesame seeds and honey During the feast the bride was veiled, and the bridegroom might never have seen her face. At nightfall a flute player arrived, the two mothers took torches and conducted the bride to a vehicle, where the bridegroom and best man were standing to take her home. A procession, preceded by flute players, was formed; people in the streets cheered, and so the bride went to her new home. On the following day, "unveiling day," the newly married couple received friends and were given wedding presents of vases, dishes, sandals, soaps, perfumes, combs, mirrors, spinning implements and other toilet and domestic articles

MARRIAGE PROCESSION

Attic painting on a toilet jar in the Louvre (fifth century B C).

The bridegroom leads the bride by the left hand. The gods who presided over marriages were Apollo and Artemis. Apollo holds a laurel branch, *Artemis a bow and quiver On the right the father and mother of the bridegroom are conversing before the door of his house*

CHILDREN'S STORY

You have been hearing a great deal about Greece and of some of her heroes, such as Theseus the brave prince, Ulysses the cunning warrior, Pheidippides the swift runner, and Leonidas the brave king of Sparta Let us see what it was like to be a boy in Athens during the "Golden Age," when the war with the Persians was over, and a grand new city had been built over the ruins of the old one.

One day a man called Cleon was walking to his home in Athens. When he reached the house, he saw tied to the door knocker a branch of the olive tree. He smiled happily, for he knew that his wife had borne him a son. He hurried inside to hear all about it. The old nurse was then washing the baby in olive oil—which was used instead of soap. Afterwards she wrapped him round and round in long swaddling clothes and put him into a cradle shaped like a shoe. She hung

the cradle up and rocked it to and fro, while she sang the baby to sleep

When he was ten days old, the nurse brought him out to show him to his father. Many friends and neighbours came in to see the new baby and to bring it presents They had a feast, for which a special cake had been baked, and after the feast the baby was given his name. He was called Clitus, after his grandfather

When little Clitus was about a year old, his mother had another baby This time it was a daughter, and instead of an olive branch, a piece of wool was tied to the door knocker, so that the neighbours should know that the child was a girl When Clitus and his sister were old enough they played many jolly games together in the courtyard Their father's house of sun-dried bricks was built round a yard. From the yard you could go into the dining room, or the kitchen, or one of the tiny bedrooms There were no windows for them to look out of, so sometimes they went up steps to the flat roof, from which they could look down on to the gay crowds below Many of their toys were like yours. They had tops, balls and hoops, dolls and toy carts, a swing and a seesaw They had pets, too Clitus had a dog, and his sister a tortoise. There were ducks in the ponds and pretty birds in cages Sometimes their mother and a friend played knucklebones together in the courtyard, or joined with the children in whipping their tops

In the evening, when they were tired of play, nurse would tell them stories of "Once upon a time." Many of these stories were *Aesop's Fables*, for Aesop was a Greek So well did he tell the stories that we still like to hear them. There are "The Dog and the Shadow," "The Fox and the Grapes," "The Hare and the Tortoise," and many, many more. How many of them do you remember?

Clitus at school.—When Clitus was seven years old he went to school. He was now too big for a nurse, so he had an old manservant to look after him This man walked behind him to see that he arrived safely, and did not stop to play by the way. The manservant carried a long stick in one hand, while in the other he held Clitus's writing tablet and his lyre.

A picture, which was painted round a beautiful Greek bowl, shows Athenian boys learning their lessons. It shows the manservant, who remained in the schoolroom during the lessons One boy is seen learning to sing to the tune played on the pipes by a master. Another boy is having his written exercise corrected. The boy wrote with a pointed stick, or stilus, on a small wooden board smeared with wax. It was something like writing with a pencil on a piece of bread spread thickly with butter. In another scene a boy is learning to play on a seven-stringed lyre, and another boy is reciting poetry, which the master has written on a roll of papyrus. Perhaps the poetry is about Troy, or the wanderings of Ulysses, written by the poet Homer (See Class Picture No. 10.)

Clitus's sister did not go to school She always stayed at home, where she learned to cook, to spin and to weave Her nurse taught her to read and to play the lyre, but she could never do these things so well as her brother, because she did not go to school.

Dinner time.—Each morning, after school was over, Clitus went home to dinner There were no clocks by which they could tell the time, but in the yard there stood a tall stick which cast a shadow when the sun shone on it They could tell by the length of the shadow what time it was. Let us suppose that we are present with a Greek family at dinner The father is reclining on a couch with his elbow on a cushion Greek gentlemen generally lay down, or reclined at their meals in this way. Their food was served to them on small tables which were placed beside the couch The mother is sitting on a chair, and the father is handing a dish Behind her stands a servant who is going to help them to wine, and behind the father stands a guest or a

relation. Under the couch a dog is eating something which has been thrown on the floor, for at meal times in Greece one always threw bones and odds and ends on the floor There were no knives and forks Food was taken in the fingers, and when the meal was over a slave brought in bowls of water for washing the hands

If you were present you would notice how the Greeks were dressed The men generally wore two garments, an under tunic and a mantle, or cloak, of wool The boy is wearing the tunic, which is sewn only at one shoulder and is held at the waist by a girdle The father has let his cloak slip from his shoulders, for the weather is hot and few clothes are needed indoors The visitor who has just arrived has wrapped his cloak carefully round him This cloak was merely a long piece of cloth It had no sleeves or buttons like our cloaks

The mother is wearing sandals, but the boy and the visitor have bare feet Out of doors men generally (but not always) wore sandals When young men wanted to look very smart they put on shoes, which might be black, white or red. If they were going for a long walk in the country they might wear long boots

Clitus would wear a tunic which might be red or blue How quickly he could dress in the mornings! The Greeks got up very, very early. They were really "up with the sun" For breakfast they had a few crusts of bread dipped in wine, and nothing more till the shadow of the stick showed it was midday

For dinner the family had many of the things we eat to-day, such as fish, fowl, meat and vegetables, fruit, cheese, bread and sweetmeats They had no tea or coffee, so they all drank wine made from grapes which grew plentifully on the sunny hillsides They had no sugar, so they used honey instead, and in place of butter they had olive oil Goats were reared on the grassy hillsides, so the children had plenty of goats' milk.

Olive oil, the oil pressed out from the fruit of the olive tree, was very useful to the Greeks. They not only used it instead of butter and soap, they also put it into their lamps to give light at night.

Growing up.—As Clitus grew older he spent much time at the gymnasium, a large open field where men went to practise running, jumping, wrestling, boxing and other such exercises. He liked swimming very much and often went with his friends for a swim in the cool river. Sometimes, on holidays, he would walk with his father to the market What a din there was there! Men and women at their stalls were shouting out "Buy oil," "Buy bread," "Buy vinegar," "Buy charcoal." Most of the things that were eaten or used at home were to be seen in the market Then it was pleasant to walk round the shops—the barbers', the perfumers', the shoemakers', the saddlers' and wine-sellers' In every shop were groups of men talking together about the news There were no newspapers in those days, and people talked a great deal more to one another than they now do in England

When Clitus was eighteen, he went into the army, and learned to drill and march and fight He had splendid armour He wore a shining breastplate round his chest, and below that a kind of leather skirt. On his legs were greaves or gaiters of bronze, and on his head a shining bronze helmet, with a great nodding plume

Look again at the picture of the Greek soldier (No. 22 in the portfolio) and you will see what Clitus looked like in armour He carried a sword and a great bronze shield, and as his father was a rich man, he was able to give Clitus a horse to ride. How proud of him his father and mother must have been the first time their grown-up son rode home in his glittering new armour! Clitus's sister clapped her hands as she looked at her handsome brother

The sons of rich men must have had a very good time in Greece during the "Golden Age." What a pity there were so many slaves as well!

TEACHING HINTS

1. Olive.—The story of "Wine and Oil" is told in Lesson XII of the First Year's Course It is illustrated by a Class Picture, No. 11 in the portfolio A Greek lamp is shown in the blackboard illustrations Greek lamps were made of terra-cotta, bronze and marble. The essential parts of a lamp are (1) the container for the oil, formed by the body of the lamp and fed from an opening above, (2) the nozzle for the insertion of the wick The nozzle generally had the form of a projecting spout, but the arrangement varied considerably in different lamps. The lamps might either be simply placed on a candelabrum or suspended from it

2. Child's name.—The ceremony of naming the child at the tenth day might be compared with the Christian ceremony of baptism A Greek boy was frequently named after his paternal grandfather, so that a pedigree was apt to run thus. Aristides, Lysimachus, Aristides, Lysimachus—and so on.

3. Aesop's Fables.—The mention of these well-known stories helps the child to acquire the "Time Sense" of history. Aesop (*c* 620-560 B C), the traditional author of the famous collection of fables, was a native of Phrygia and originally a slave in Samos He is said to have won the favour of Croesus, king of Lydia, who employed him on important missions Tradition represents him as very ugly, but very witty

4. Clocks.—The Athenians had a simple method of calculating the time of day by observing the length of the shadow of a vertical stick, cast by the sun which threw the shadow upon a marked floor. The time was denominated by the length of the shadow, recorded in feet. A guest would be invited to come to dinner when the shadow was "ten feet" or "twelve feet," as the case might be

Children will be interested to experiment with a stick in this way

5. Toys and games.—Herodotus tells a curious story to the effect that the Lydians invented dice, knucklebones, balls and other playthings to help them pass a time of famine, by playing and eating on alternate days. "In the reign of Atys the son of Manes, their king, there came to be a grievous dearth over the whole of Lydia, and the Lydians for a time continued to endure it, but afterwards, as it did not cease, they sought for remedies, and one devised one thing and another of them devised another thing And then were discovered, they say, the ways of playing with the dice and the knucklebones and the ball, and all the other games excepting draughts (for the discovery of this last is not claimed by the Lydians) These games they invented as a resource against the famine, and thus they used to do —on one of the days they would play games all the time in order that they might not feel the want of food, and on the next they ceased from their games and had food and thus they went on for eighteen years"

Games played with knucklebones (small bones forming part of the ankle joint in cloven-footed animals) were extremely common. Imitations in stone and bronze were used in addition to the natural bones. Among women they were a favourite plaything We read of a boy who gained eighty knucklebones as a writing prize. The game was called "five-stones," a name still given by children of to-day to a similar game. A Greek writer thus describes it "The knucklebones are thrown up into the air, and an attempt is made to catch them on the back of the hand If you are only partially successful, you have to pick up the knucklebones which have fallen to the ground, without letting fall those already on the hand. . . . It is above all, a woman's game."

6. Dress.—The earliest dress of women which is represented in the art of historical Greece is the Dorian *chiton*, or tunic It was an oblong piece of heavy woollen cloth,

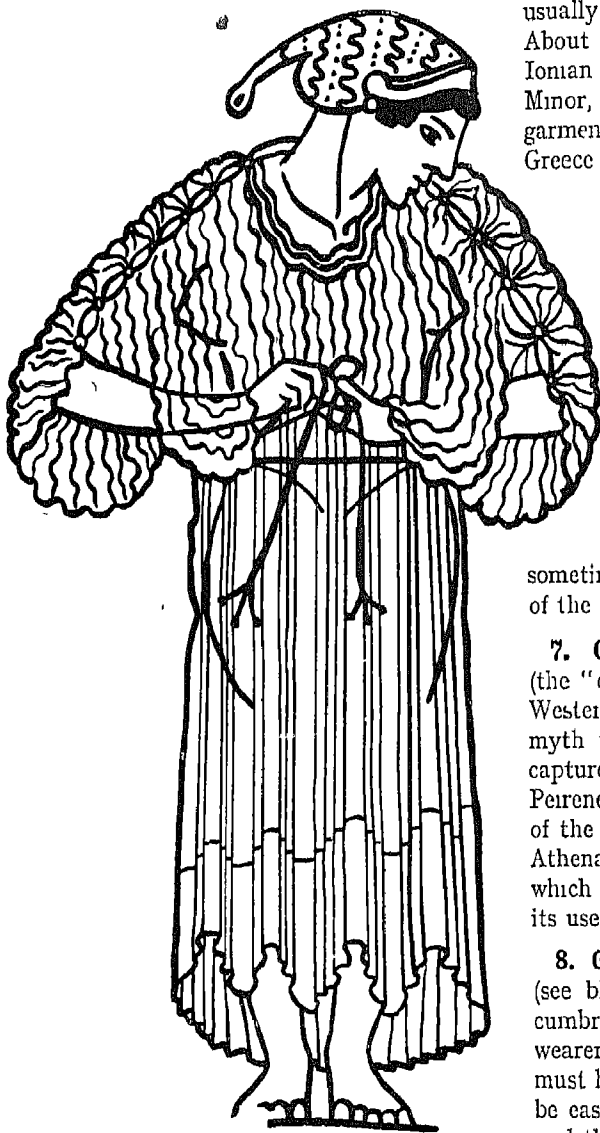



Fig C

Greek Dress

measuring rather more than twice the height of the wearer, and about twice the span of the arms This cloak was folded as shown in Fig A. The material fell into position about the figure, leaving the arms bare, as in the picture, which is taken from a painted toilet box, Fig B. A girdle was usually worn to keep the open edges together About the middle of the sixth century the Ionian tunic was introduced from Asia Minor, and became the ordinary under-garment of women in Italy, as well as in Greece throughout the classical period It was more voluminous than the Dorian tunic, made of thinner material, closed at the side, and sewn or pinned up on the shoulders to make wide sleeves Its design is shown in a drawing inside a cup which represents a woman dressing. She holds up the loose folds above her waist while she ties her girdle, which divides the garment, as it were, into a skirt and blouse (See Fig. C) The whole figure was often wrapped in a cloak which was sometimes drawn over the mouth and the top of the head for outdoor wear. (See Fig. D)

7. Greek coins.—An important currency (the "colts" of Corinth), used especially in Western Greece, took its type from the local myth that the winged horse Pegasus was captured by Bellerophon at the fountain Peirene, which flowed from the acropolis of the town On the reverse is the head of Athena wearing a helmet of the pattern which is known as Corinthian because of its use here (See blackboard sketches.)

8. Greek helmets.—The Corinthian helmet (see blackboard sketch) at its best was a cumbrous piece of armour. The ears of the wearer were covered, and the ill-fitting shell must have sat loose upon the head, so as to be easily displaced by a sudden turn This and the chafing of the metal were obviated in some degree by a lining of felt or leather, which was sewn inside the helmet in the rows of holes along the edges.

The Attic helmet, which gets its name from its use on the coins of Athens, appeared first in the sixth century B C, and in the fourth was the usual type It is lighter than the Corinthian, and resembles a cap with appendages to protect the neck, cheeks and nose. The ears were thus left free

SKETCHES FOR THE BLACKBOARD

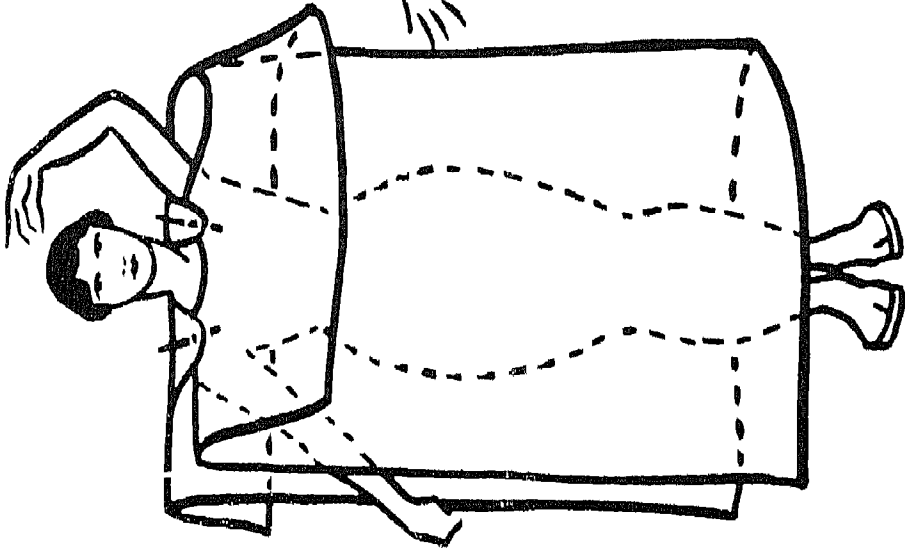



Fig A

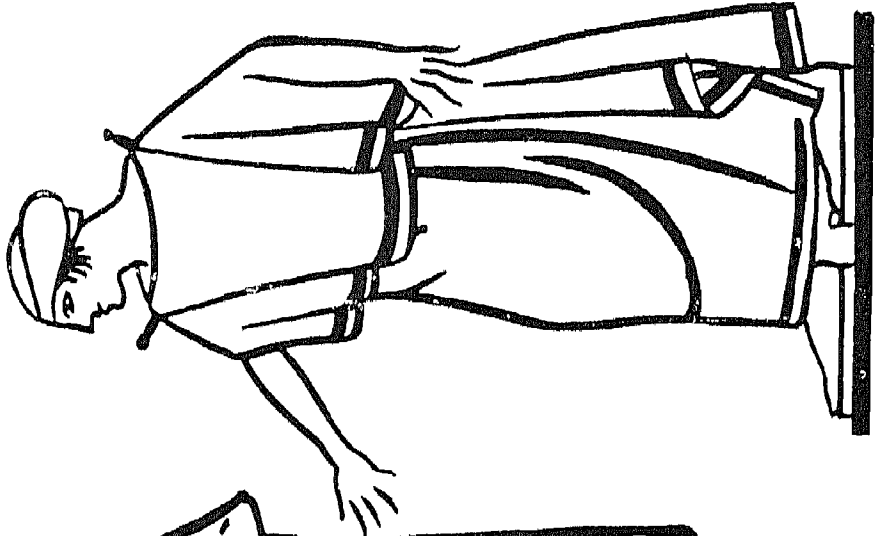



Fig. B

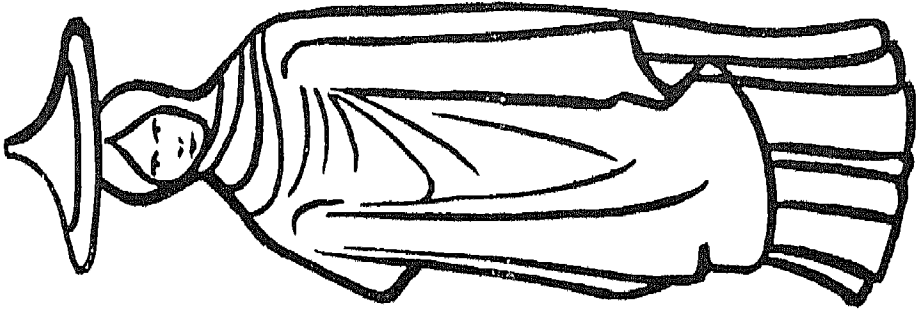
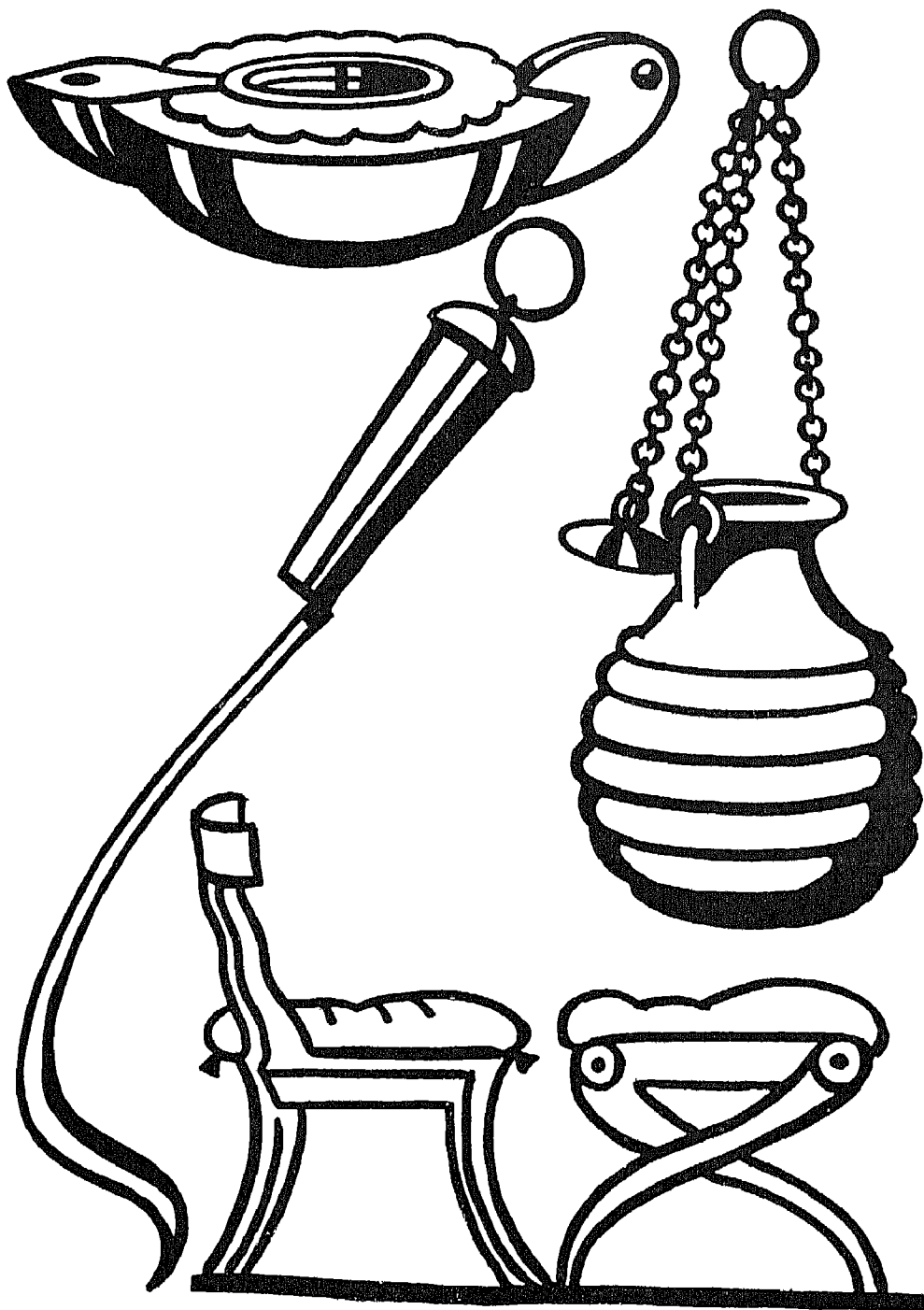
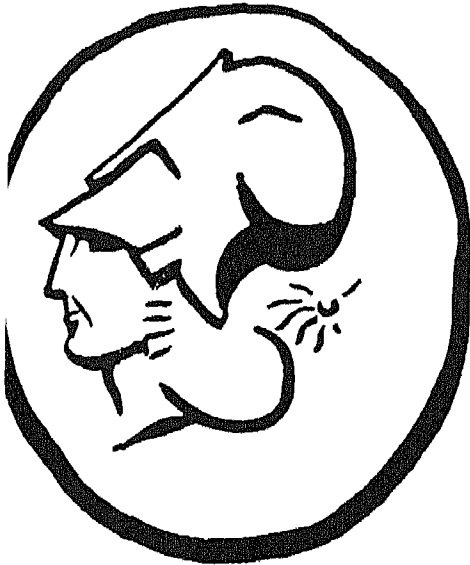
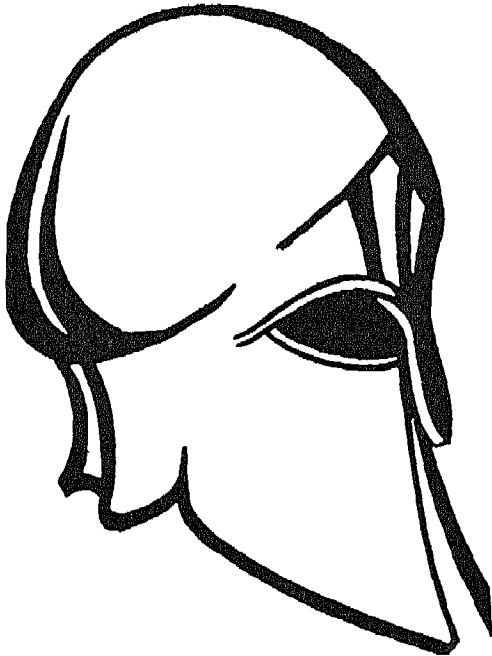
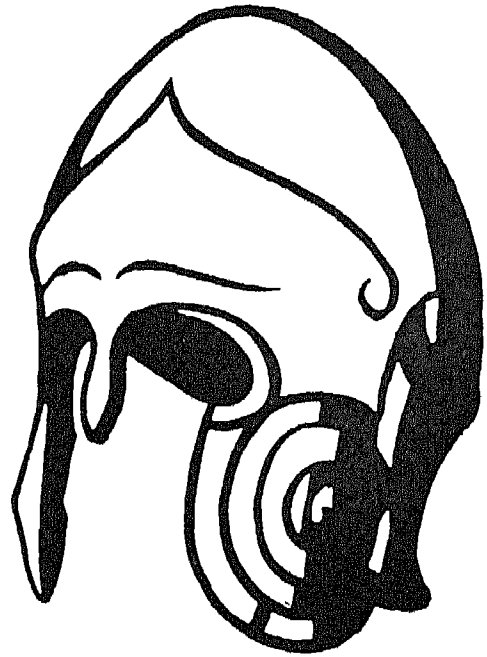



Fig D

Greek Dress

SKETCHES FOR THE BLACKBOARD

LAMP
BRONZE STRIGIL

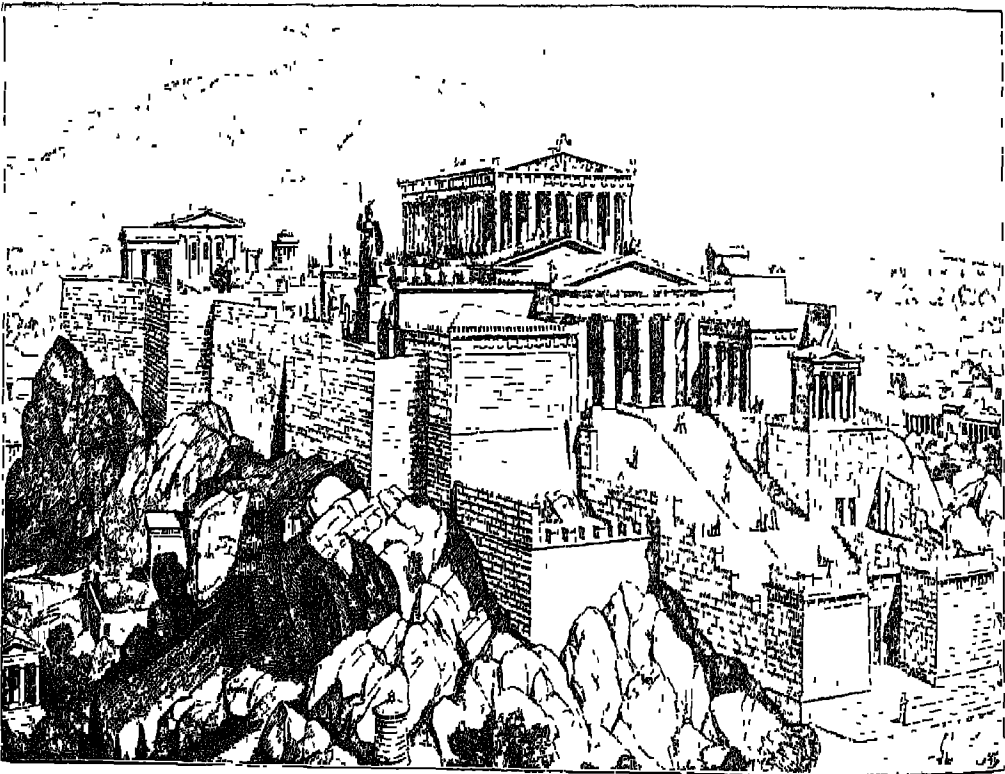
OIL FLASK
CHAIR AND STOOL

SKETCHES FOR THE BLACKBOARD

Corinthian Coin, A—Head of Athena
Corinthian Helmet

B—Winged Horse Pegasus
Attic Helmet from Macedonia

XIV. ATHENS IN THE AGE OF PERICLES

THE Acropolis.—Like most Greek cities, Athens had grown up round a natural rocky hill which lent itself conveniently to fortification The name acropolis was originally applied to the site of such a hill stronghold, later, it came to mean the citadel itself, which gradually became a religious and political centre The term is now specially given to the acropolis of Athens, which is known as *the* Acropolis Before the Persian War, the Acropolis was covered with a miscellaneous assemblage of temples, houses and other buildings, but the city was twice burnt by the Persians, so that the Athenians had the opportunity, during the years of prosperity which followed the Persian wars, of entirely rebuilding the Acropolis and of making it the most perfect group of buildings the world has ever seen.

This rebuilding took place during the fifty years of prosperity and imperial expansion which elapsed between the end of the Persian War (490-480 B.C.) and the beginning of the Peloponnesian War (431-404 B C). This period marks the highest perfection of Athenian art, architecture, and, indeed, of all forms of self-expression It is known as the Age of Pericles, after the great ruler, who, during his period of office (443-429 B.C), raised Athens to her highest power and glory.

The rebuilding of the Acropolis was organised by Pericles and superintended by Pheidias, his friend and the greatest sculptor

RESTORED ACROPOLIS

of ancient times The illustration shows a restoration of the hill top with its buildings. An ascent of seventy broad marble steps led up to the Propylaea or entrance gate, the pride of every Athenian It resembled a triumphal arch, with halls on each side, one of them containing a picture gallery Passing through the Propylaea the visitor was confronted by a colossal bronze statue of Athena, seventy feet high and the work of Pheidias The gilded tip of the goddess's spear was visible to a home-coming Athenian while still far out to sea

To the right stood the Parthenon, the temple of Athena Parthenos (the Virgin). Like all Greek temples it was a partly roofless chamber, surrounded by a covered colonnade with a gable or pediment at the entrance Such a colonnade is found in most Greek temples It formed a covered walk open to the sun, where one might walk or sit in comfort, looking out over the city In the Parthenon the colonnade was ornamented by a carved frieze running round the temple wall under the roof. This frieze was the work of Pheidias and his assistants, and represents the Panathenaia or yearly procession in honour of Athena. This glorious sculpture, which expresses so fully the Greek ideal of physical perfection, is known to us through the "Elgin Marbles," portions of the sculptures which, with the help of Lord Elgin, were brought to England during 1800-12 and are now in the British Museum, where a model of the Parthenon and of the Acropolis as a whole may also be seen

Inside the temple, dimly lighted by holes in the roof, and by light reflected from the marble walls and ceiling, stood another statue of Athena also by Pheidias, and this statue was made of wood covered with plates of gold and ivory Behind the temple proper was a second chamber used as a treasury, where was stored part of the enormous wealth which came to Athens through successful wars, through trade, and through tribute from subject states, and which made possible these vast building schemes

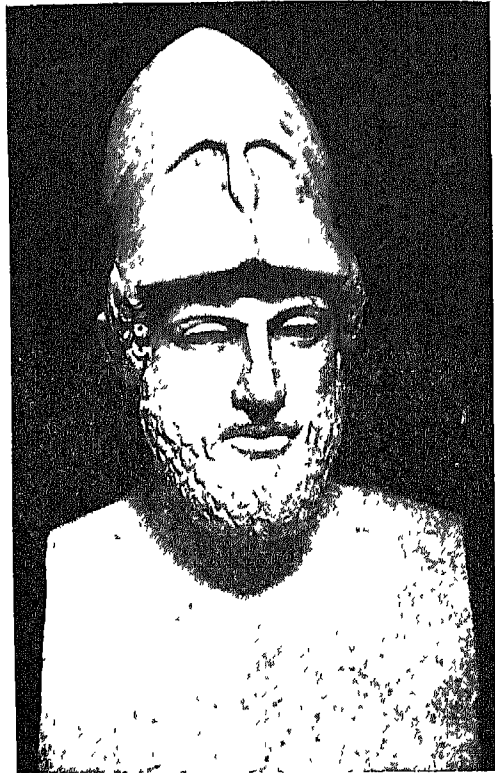
Among the other buildings of the Acropolis was the great open-air theatre of Dionysus During the yearly festival which was held in early spring in honour of that god, the whole of Athens would crowd into the tiers of stone seats that still rise in an irregular curve of about two-thirds of a circle up the side of the Acropolis hill. There for three days they would sit and watch the performances—a set of three tragedies in the morning and a comedy in the afternoon. These plays were originally religious in nature, though a good deal of local colour was introduced, especially in the comedies. There were also competitions, and at the end of the festival a prize was given to the authors of the best tragedy and comedy, to the best actor, and to the citizen who financed and produced the best piece

It gives us some idea of the public spirit, religious zeal and artistic ability of the Athenians when we reflect that the men who planned the Acropolis on such a sweeping scale, wrought it, paid for it a sum equal to over six million pounds of our money, and yet were content to live themselves in small unornamented houses in narrow and often dirty streets, so that the traveller was often fain to ask, as he picked his way through the dusty lanes, whether this was indeed Athens. But he had only to lift his eyes to the Acropolis to have his doubts resolved. The orator Demosthenes in later years put the passionate pride of the Athenians in this great national achievement into words when he said, "Athens still keeps everlasting possessions, on the one side the memory of her exploits, on the other the beauty of the monuments dedicated in those olden days—yonder Propylaea, the Parthenon, the Colonnades"

Great men of the Periclean Age.—Great achievements require great men to conceive and execute them During this short period Athens produced an amazing number of famous characters—poets, artists, statesmen, philosophers—who all contributed their share to the world's heritage

First comes PERICLES himself, the presiding genius of the age. This great leader and patriot was elected military commander-in-chief in 460 B C and for thirty-one years, till his death in 429, was the true ruler of Athens His power depended chiefly on the respect which the Athenians had for his noble character. They knew that he had their interests alone at heart, and they trusted him to use for his country's glory only the great power with which he was entrusted.

The character of the man, which so closely resembles the character of the Athenian nation as a whole, may be judged from the funeral speech which he made over the Athenian heroes who fell at the beginning of the Peloponnesian War The whole speech is recorded by Thucydides the historian, but only a portion of it can be given here:

"When the moment came he stepped forward from the graveside on to a high platform made for the occasion, so that his voice might carry over the crowd, and spoke as follows 'My first words shall be for our ancestors, for it is both just and proper that at a time like this our tribute of memory should be paid to them They are worthy of our praises, for they enlarged the empire which we hold to-day Of the battles which we and our fathers fought, bravely withstanding barbarian or Greek, I do not wish to say more. I wish rather to show the spirit in which we faced them, and the way in which we rose to greatness Our laws give equal justice to all, and we welcome and honour talent in every branch. We have no black looks or angry words for our neighbour if he enjoys himself in his own way, and we keep from the little mean-spirited acts which cause annoyance. We are reverent and obedient to those set in authority and to the laws No other city provides such beauty in its public buildings to cheer the heart and delight the eye Moreover, the city is so large and powerful that all the wealth of all the world flows into her. Our military training, too, is different The gates of our city are flung open to the world, nor do we prevent our visitors from seeing what an enemy might care to copy For we do not trust in arms and armour, but in our own warlike spirit So, too, with education Our enemies toil from early boyhood in search of courage, while we, free to live and wander as we

PERICLES

Bust in the British Museum

Plutarch says that nearly all the portraits represented Pericles wearing a helmet, because his head was mis-shaped In his own time he was called "bulb head."

please, march out none the less to face the self-same dangers Our citizens attend to both public and private duties, and we think him useless who keeps apart from public life We are most adventurous in action, but consider well beforehand. The bravest surely are those who have the

clearest vision of what is before them, glory and danger alike, and yet go out to meet it. Such then is the city for whom, lest they should lose her, these men died a soldier's death For if I have chanted the glories of the city, it was these men and men like them who made her what she is'."

With Pericles must be associated his friend PHEIDIAS, the world-famous sculptor who collaborated with him in his plans for beautifying Athens He was responsible, as we have already seen, for the two great statues of Athena in the Acropolis, and he superintended the carving of the Parthenon frieze. He seems to have had the power of communicating his skill and ideas to his pupils, since it is impossible to tell which sections of the Parthenon are his work and which are by his pupils. His greatest achievement was the gold and ivory statue of Zeus at Elis, which overlooked the plain where the Olympic Games were held, and which was reckoned as one of the Seven Wonders of the World

SOCRATES

Dramatists —Four names survive as representing the best of the Greek playwrights of the age—AESCHYLUS, SOPHOCLES and EURIPIDES who were tragedians, and ARISTOPHANES whose plays were chiefly amusing comedies It must not, however, be supposed that these four represent the whole of Greek drama It is only by chance that their work has survived rather than that of the many other, and possibly greater, dramatists of the period

Be this as it may, however, these plays as we have them are the foundation of our modern drama. They are of very fine quality with a poetry and depth of thought that still fascinates the great minds of our age, while the dramatic stories they tell grip the imagination of ordinary men and women It is a pity that so few have survived out of the enormous quantity of dramas that were written We are told that Sophocles alone produced one hundred and thirty plays, of which unfortunately only seven have survived.

Historians —HERODOTUS is often called the "Father of History," for he was the first to write history as we know it He gathered his information from monuments and inscriptions, traditions, the works of other Greek writers, and his observations on his many travels. The selections given in this book afford an excellent idea of his method, which is to amuse as well as to instruct

While Herodotus' history is mainly devoted to an account of the Persian War, that of THUCYDIDES tells the story of the Peloponnesian War His history is perhaps the finest Greek prose ever written; it contains many fine speeches (such as the Funeral Speech already quoted) and brilliant character sketches of the men of his day His great mind and clear perception of the true meaning behind events make him in this respect the greatest historian of the ancient world.

Orators.—The period saw the careers of many great orators, for the gift of oratory was much prized and carefully cultivated by the Athenians They had a passion for lawsuits, and hired trained speakers to plead for them or to write their speeches Of these orators the only one who need be mentioned is DEMOSTHENES, who has already been referred to in the story of Alexander as using all his eloquence to warn the Athenians of the danger of Macedonian invasion

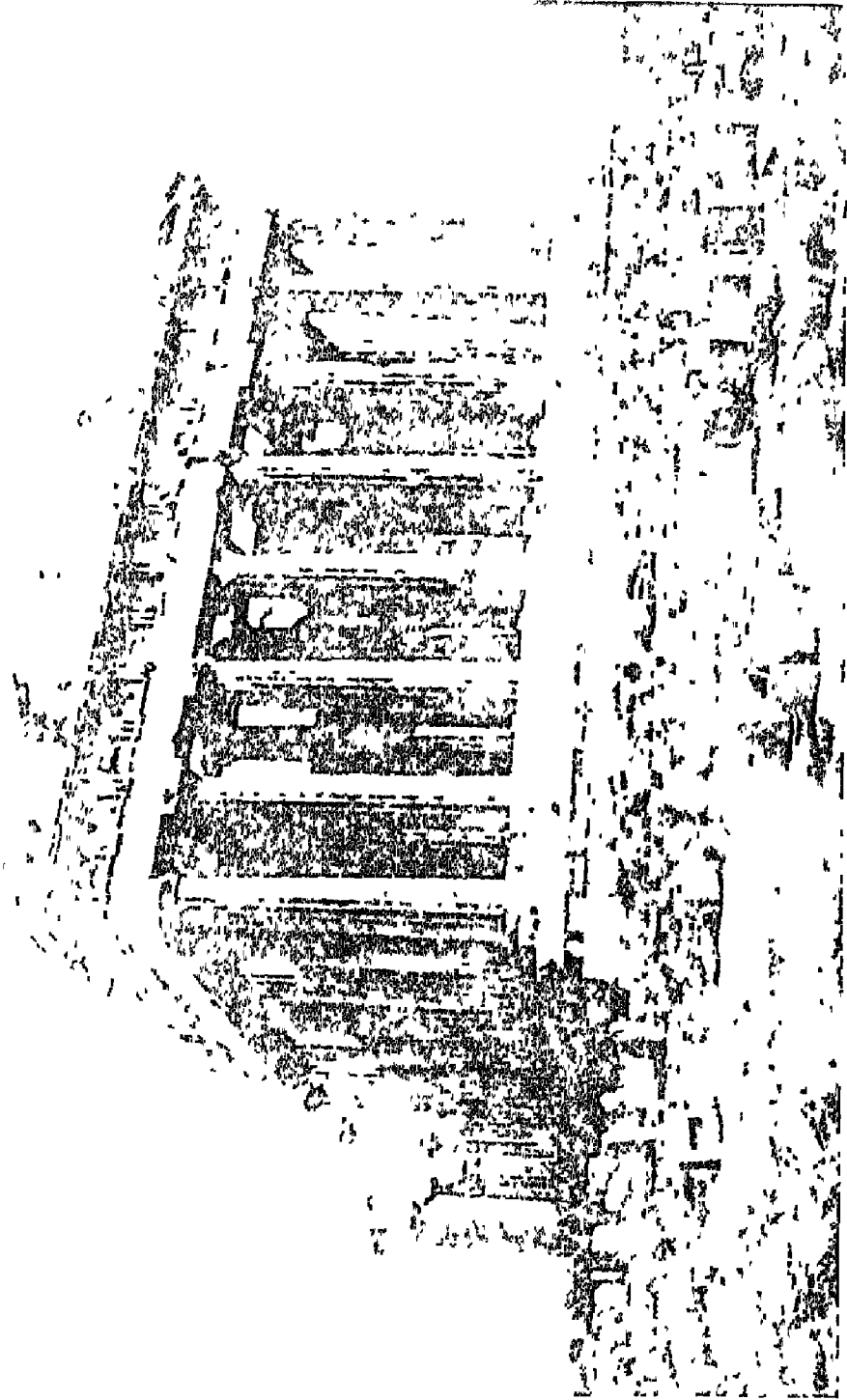
Philosophers.—The greatest of the Greek philosophers and the man destined to have the greatest influence on posterity was SOCRATES Ugly and ungainly in appearance, he yet had a beautiful character and disposition, and a keen mind which even the quick-witted Athenians found too sharp for them Although a sculptor by trade, he spent most of his time in the market place, engaging people in conversation and forcing them to think deeply on such subjects as truth and justice. His age did not appreciate him or his methods, which they thought likely to stir up discontent among the Athenians, and on a charge "of corrupting the youth of the city" he was condemned to death and forced to drink poison (the usual method of execution).

But his work was carried on by his pupil PLATO, who has preserved for us many of Socrates' conversations which would otherwise have been forgotten, since Socrates himself wrote nothing Plato's most important work is *The Republic*, the greatest work of political philosophy ever written, and still a source of inspiration to thinkers of to-day.

Plato's own disciple was ARISTOTLE who, as we have seen, was tutor to Alexander the Great Aristotle was the scientist *par excellence*, and for two thousand years he has been a mine of ideas to men of all countries.

CHILDREN'S STORY

There were many clever men living in Greece during her "Golden Age" Among these was Herodotus, a famous writer of history He was born in a Greek city, Halicarnassus, in Asia Minor, which was then under Persian rule. The first half of his life was spent in travel About 446 B C he went to Athens and there made friends with some of the wise Greeks living at that time. He travelled in Persia, Egypt, Italy, Sicily and other lands. During his travels he made careful enquiries about the manners, customs and stories of the people whom he visited Afterwards he wrote in Greek his wonderful books of history. His chief idea was to tell the story of the great struggle between the Persians and the Greeks It is Herodotus who tells us so clearly the stories of Marathon, Thermopylae and Salamis He was the first man to write history according to a plan, and he is always looked upon as the Father of History. The following accounts are taken from his books

A story of Croesus, the rich king of Lydia.—"Croesus having heard that Alcmaion did him service, sent for him to Sardis And when he came, he offered to give him a gift of as much gold as he could carry away at once upon his own person. With a view to this gift, its nature being such, Alcmaion made preparations and used appliances as follows. he put on a large tunic leaving a deep fold in the tunic to hang down in front, and he drew on his feet the widest boots which he could find, and so went to the treasury to which they conducted him. Then he fell upon a heap of gold dust, and first he packed in by the side of his legs so much of the gold as his boots would contain. And then he filled the whole fold of the tunic with the gold, and sprinkled some of the gold dust on the hair of his head, and took some into his mouth. And having so done, he came forth out of the treasury, with difficulty dragging along his boots, and resembling anything in the world rather than a man, for his mouth was stuffed full, and every part of him was swelled out. Upon Croesus came laughter when he saw him, and he gave him all that gold and much more."

THE PARTHENON (PRESENT STATE)

The crocodiles of Egypt.—"Of the crocodile the nature is as follows. during the four most wintry months this creature eats nothing. She has four feet and is an animal belonging to the land and the water both, for she produces and hatches eggs on the land, and the most part of the day she remains upon dry land, but the whole of the night in the river, for the water in truth is warmer than the unclouded open air and the dew. Of all the mortal creatures of which we have knowledge this grows to the greatest bulk from the smallest beginning, for the eggs which she produces are not much larger than those of geese and the newly hatched young one is in proportion to the egg, but as he grows he becomes as much as seventeen cubits long and sometimes yet larger He has eyes like those of a pig and teeth large and tusky, in proportion to the size of his body; but unlike all other beasts he grows no tongue, neither does he move his lower jaw, but brings the upper jaw towards the lower, being in this, too, unlike all other beasts. He has moreover strong claws and a scaly hide upon his back which cannot be pierced, and he is blind in the water, but in the air he is of very keen sight. Since he has his living in the water he keeps his mouth all full within of leeches; and whereas all other birds and beasts fly from him, the crocodile-bird is a creature which is at peace with him, seeing that from her he receives benefit For the crocodile having come out of the water to the land and then having opened his mouth (this he is wont to do generally towards the West Wind), the crocodile-bird upon that enters into his mouth and swallows down the leeches, and he being benefited is pleased and does no harm to the crocodile-bird.

"Now for some of the Egyptians the crocodiles are sacred animals, and for others not so, but they treat them on the contrary as enemies Those however who dwelt about Thebes and about the lake of Moiris hold them to be most sacred, and each of these two peoples keeps one crocodile selected from the whole number, which has been trained to tameness, and they put hanging ornaments of molten stone and of gold into the ears of these and anklets round the front feet, and they give them food appointed and victims of sacrifices and treat them as well as possible while they live, and after they are dead they bury them in sacred tombs, embalming them."

The gnats of Egypt.—"Against the gnats, which are very abundant, they have contrived as follows:—those who dwell above the fen land are helped by the towers, to which they ascend when they go to rest; for the gnats by reason of the winds are not able to fly up high. But those who dwell in the fen land have contrived another way instead of the towers, and this it is — every man of them has got a casting net, with which by day he catches fish, but in the night he uses it for this purpose, that is to say he puts the casting net round about the bed in which he sleeps, and then creeps in under it and goes to sleep: and the gnats, if he sleeps rolled up in a garment or a linen sheet, bite through these, but through the net they do not even attempt to bite."

The building of the Great Pyramid.—"After Kafre ascended the throne he brought them to every kind of evil. for he shut up all the temples, and having first kept the people from sacrifices there, he then bade all the Egyptians work for him So some were appointed to draw stones from the stone quarries in the Arabian mountains to the Nile, and others he ordered to receive the stones after they had been carried over the river in boats, and to draw them to those which are called the Libyan mountains; and they worked by a hundred thousand men at a time, for each three months continually. Of this oppression there passed ten years while the causeway was made by which they drew the stones, and it is made of stone smoothed and with figures carved upon it For this, they said, the ten years were spent, and for the underground cham-

bers on the hill upon which the pyramids stand, which he caused to be made as burial chambers for himself in an island, having conducted thither a channel from the Nile For the making of the pyramid itself there passed a period of twenty years; and the pyramid is square, each side measuring eight hundred feet, and the height of it is the same. It is built of stone smoothed and fitted together in the most perfect manner, not one of the stones being less than thirty feet in length

On the pyramid it is declared in Egyptian writing how much was spent on radishes and onions and leeks for the workmen, and if I rightly remember that which the interpreter said in reading to me this inscription, a sum of one thousand six hundred talents of silver was spent. And if this is so, how much besides is likely to have been expended upon the iron with which they worked, and upon bread and clothing for the workmen, seeing that they were building the works for the time which has been mentioned and were occupied for no small time besides, as I suppose, in the cutting and bringing of the stones and in working at the excavation under the ground?"

MORE STORIES TO TELL

1.—THE GODDESS HOLDA AND THE FIRST FLAX-GROWER

IN a beautiful valley among the Swiss mountains there lived a peasant and his wife The peasant was well-content with his simple life. He spent his days watching his little flock of sheep as they grazed on the pine-clad slopes, and at nightfall he returned to the wooden hut that he had built in the shadow of the snow-clad mountain tops.

But his wife was an ill-tempered woman. She did not like this quiet life, and was for ever scolding. "Why did you bring me to this lonely place?" she would ask. "I have no fine clothes like the women in the village down yonder, and there is often not enough to eat."

Then the peasant would take down his cross-bow and set off to hunt for the wild goats that lived in the mountains. If he were lucky enough to shoot one, he would bring it home for supper.

One day, as he was following a goat, it led him up and up the mountain till he came to a place where he had never been before. He had climbed so high that the green slopes were left behind, and all around was glistening ice and snow.

Suddenly, to his amazement, he saw before him a doorway leading into the mountain. Summoning up his courage, he entered and found himself in a great hall. It was supported by crystal pillars and the floor was heaped with precious treasures and glittering jewels. In the middle of the hall, surrounded by lovely maidens in silvery garments, stood the most beautiful lady he had ever seen

Overcome with fear and shame, the peasant fell upon his knees and begged the lady's pardon for thus rudely breaking into her palace As if in a dream, he heard her soft voice bidding him have no fear. "I am the goddess Holda," she said, "the queen of the skies Rise up, and choose which of my treasures you will have to take away with you"

The peasant gazed around, but so many splendid things met his eyes that he knew not which to choose. At last his glance fell on a little bunch of flowers in the lady's hand. "I would like those," he said.

"You have chosen wisely," said the lady with a gracious smile as she gave him the

nosegay, "they are the flowers of the flax, and while they remain fresh in your care you will never die Here too is a bag of their seed. Sow this seed, and tend it with care, and then watch to see what will happen "

Still wondering if he were not dreaming, the peasant returned home, and told his adventures to his wife. But she only scolded him. "You foolish fellow!" she cried, "you might have brought me home a golden bracelet, or a silver girdle, instead of a bunch of wretched flowers and a bag of worthless seeds "

The peasant, who was used to her ways, only smiled and went out to sow his seeds He tended them well, and was rewarded by seeing them sprout into hundreds of little green shoots These shoots soon grew into plants with flowers of a heavenly blue.

When the blossom was over, and the seed had come, the peasant once again met the goddess Holda walking in the fields. She showed him how to gather the flax, to soak the stems so as to get out the fine shiny threads in them, and to weave these threads together into linen. All the countryside soon heard of this wonderful new material and came to buy it. Soon the peasant was a rich man and his wife was so busy spinning flax into linen that she had no time to be cross.

In this way many happy years passed, till the peasant's wife died and he himself grew very old One day he noticed that the fairy flowers, which had remained fresh for so many years, were at last beginning to fade "My time has come," said the old man

He said farewell to his friends and set off up the mountain A hunter saw him enter the cave in the ice, and he was never seen again All over the world to-day grows the flax plant with the blue flowers, which the goddess Holda gave to the peasant.

2. THE STORY OF PHAETON

Phaeton was a beautiful youth whose father was Apollo, the god of the Sun. One day another youth laughed at him and said, "You are not telling the truth when you say that your father is a god; your father is only an ordinary man." This made Phaeton very angry and he made up his mind to visit the Sun-god, and ask him if he were really his father

He went to the land of the sunrise, where stood the palace of the Sun, in which Apollo clothed in purple sat on a golden throne that glittered with diamonds. The light was so dazzling that the youth could not come near the throne. Beside the golden throne stood the fair forms of the Day, the Month, the Year, the Hours and the Seasons.

Apollo, seeing the youth dazzled with the splendour of the scene, asked him why he had come

In a trembling voice the youth replied, "O Light of the great world, tell me if you are really my father."

Then Apollo put aside the rays of light which shone around his head, and said to the youth, "Come nearer to me."

Phaëton came towards Apollo, and Apollo embraced him saying, "You are really my son, and to prove this I shall let you have anything you ask me for."

"My father," replied Phaeton, "let me drive the chariot of the sun through the skies for one day "

Apollo was very sorry that the boy had asked this, for he knew how hard it was to drive the horses of the Sun.

"No one but myself," said Apollo, "can drive the flaming chariot of the Sun. The first part of the road is so steep that the horses can hardly climb it; the middle part is high in the sky, so high that it almost makes me afraid when I look down and see far below me the earth and the wide sea. The last part of the road is a steep slope and I have to drive most carefully. And all the time the heaven is turning round, carrying the stars with it. On each side of the road are fearful monsters Thou must pass the horns of the Bull, in front of the Archer, and near the jaws of the Lion. In one place the Scorpion stretches out his arms, in another the Crab puts forth his claws. Beware, my son, for fear that you go to your death."

But the boy had made up his mind, and at last Apollo led him towards the beautiful chariot. It was made of shining gold, the axle was of gold, the pole and the wheels of gold, and the spokes were of silver. Along the seat were rows of diamonds and precious stones, which shone like fire in the brightness of the Sun.

While the boy gazed in delight and wonder the beautiful Dawn threw open the purple gates of the East, and showed the pathway covered with roses

The stars fled away, and last of all went the Daystar Then the lovely Hours harnessed the fiery steeds, and Apollo, anointing the face of his son with ointment so that he should not feel the heat, told him to hold the reins firmly. Taking the rays of light from his own head, Apollo placed them on the head of his son, giving him this last advice, "Keep away from the North and the South, keep in the path between, for in the middle you shall be safe."

The boy thanked his father and sprang lightly into the golden chariot, grasping the reins with delight. But the horses felt that the load they drew was lighter than usual, and dashed away from the road. For the first time the Great Bear, far away in the North, was scorched with heat, and the Serpent which is coiled round the North Pole frozen and harmless, felt life coming back to him.

When Phaëton looked down and saw far below him the vast earth and the wide sea he grew pale, and his knees shook with fear. He did not know whether he should pull the reins tight or let them loose He forgot the names of the horses.

Then he saw monsters all over the face of the heavens, the Scorpion with his great claws and tail made him so afraid that he dropped his reins, and could no longer guide the horses. The horses now galloped where they wished, sometimes high in the sky, sometimes almost touching the earth. The moon with wonder saw her brother's chariot below her own.

The clouds smoked; the forests on the mountains burned, the fountains and rivers dried up The world seemed on fire. So hot was it that the people of Africa were burned black, and they are black to this day.

Three times Neptune, the Sea-god, tried to raise his head above the water, and three times he had to shrink back because of the heat.

The Earth, scorched and burning, prayed to Jupiter, asking him to end her pain by killing her with one of his thunderbolts. Even the North and South Poles were smoking. These poles held up the palace of Jupiter, and if they fell everything would be destroyed. Jupiter heard her prayer, and telling all the gods that everything would be burned up unless he destroyed Phaeton, thundered through the sky. Then seizing a lightning bolt he hurled it at Phaëton.

The youth, struck by the lightning, fell from the chariot with his hair all on fire. Like a shooting star he fell towards Earth, making a bright track through the air as he fell. A great river received his burning body and the fairies of the stream wept over him.

His sisters, the daughters of the Sun, mourned for him by the banks of the stream, and were changed into poplar trees.

So died Phaeton, the beautiful child of the Sun, because he tried to do a task too hard for him

SECOND YEAR'S COURSE OF HANDWORK FOR THE HISTORY LESSONS

ABRAHAM

The Children's Story in the first history lesson deals with early life in Canaan, and stresses the conditions under which the people contemporary with Abraham lived. The children are given a glimpse of the nomadic tribes, their tents, their flocks and herds and their families. The information is largely associated with Bible lessons, so that the teacher will be able to use some of the material to assist with religious teaching, for children are at times prone to associate life in Canaan with that of twentieth-century England. Further correlated handwork exercises will be found in Volume I. under the historical section, "The Land that Never Changes"; while in scenic group models, the camel and driver given in the geographical section No 9, "The Hot Dry Lands," will be found useful.

The first handwork exercise described on the plate is that of a typical eastern house, rectangular in shape, with the characteristic flat top, such as that on which the spies of Old Testament history were hidden by the faithful Rahab. For this model an old cardboard box is utilised· if several boxes of varying size are used, the results will be all the more satisfactory, for the houses may be grouped, when completed, to form a village, and the differing sizes will add variety to the group. The box (Fig 1 A) is inverted so that the solid base is upward, and the lid is stuck to this base, Fig 1 B. Before sticking, cut a small square opening out of the lid, place the lid in position and trace round the opening; finally cut a similar hole out of the base of the box The two holes will then correspond when the lid is stuck down Next, take a long strip of brown paper, or yellow tinted paper, the exact height of the box, and paste it round to cover the cardboard. If brown or pastel paper be used, colour may be added with pastels. The door may be cut on folded paper as shown in Fig 1 C, and pasted on to the walls. The younger children may be allowed to add the windows to the house by simply drawing them in pastel, but older children should cut out one or two rectangular spaces, pierce the edges with holes, and sew on strands of raffia, weaving over and under, Fig. 1 D. As before mentioned, the completed houses (Fig. 1 E) might be assembled to form a group, and one or two camels with camel drivers will give a realistic finish.

Fig. 2 shows an attractive cut-out of an oasis that the children will enjoy making, especially if the bright colours indicated be used. First of all, on the background sheet a piece of pale blue paper is pasted for the sky, and below the horizon orange or yellow paper is pasted to represent the sand. The narrow strip of the distant hills is of a pale purple colour. The dark blue strip for the water is fringed with portions of green paper, then the brown stems of the palm trees are added. To the ends of these stems, masses of dark green foliage, worked in free cutting, are stuck to overlap somewhat.

Fig. 3 is a plastic model of an eastern well that gives scope for brick building The children should prepare a supply of cubical bricks by pressing masses of clay on the modelling board. The bricks are assembled to form a well head as shown, and finally one or two water jars are added.

Fig. 4 shows a cut-out of an eastern shepherd, ready for tracing and duplicating After being painted in shades of pale yellow, a number of sheep traced from the plate in Volume I, page 513, might be assembled about the shepherd to form a group

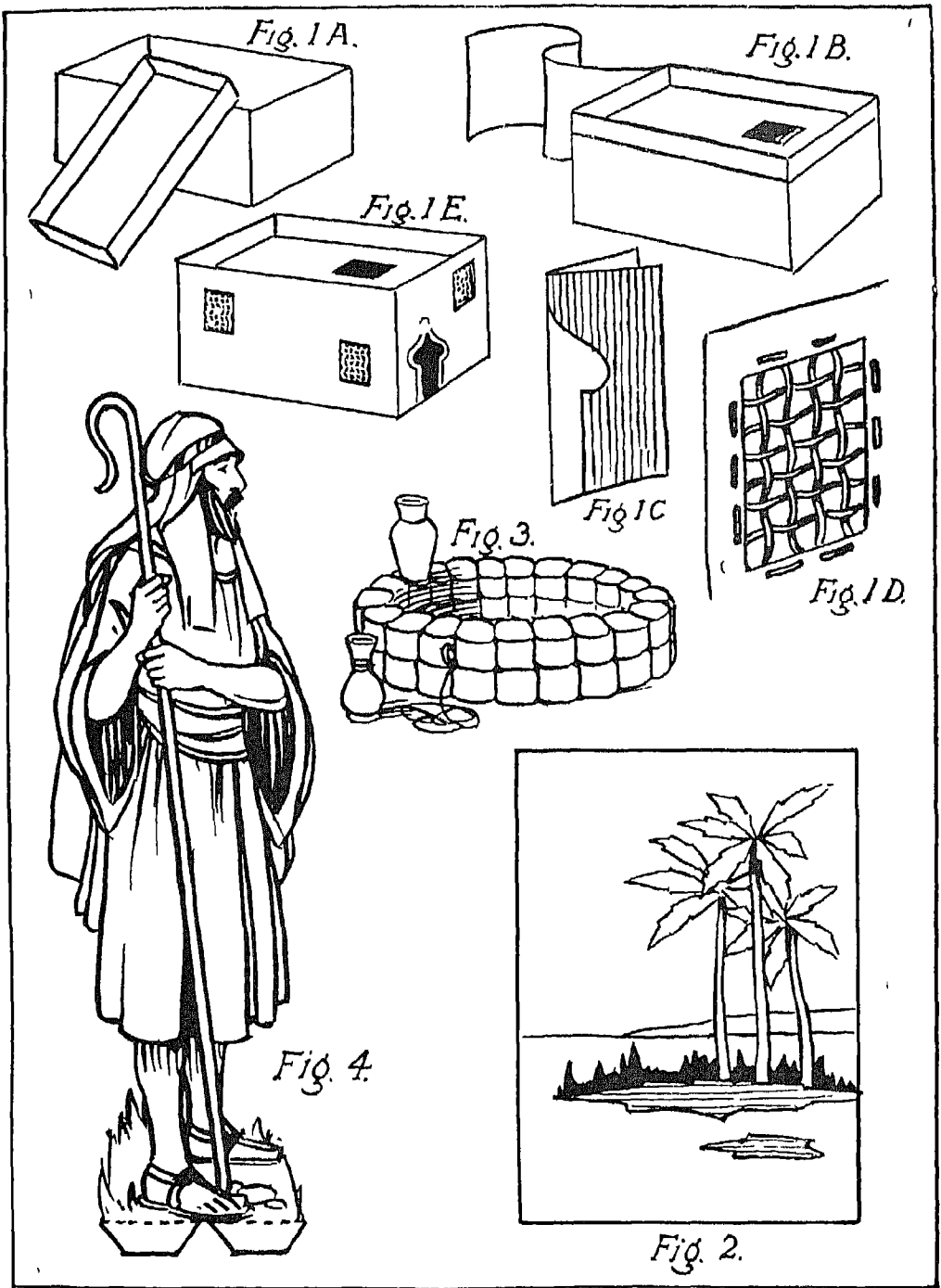



PLATE I

Fig 1 An Eastern House made from a Cardboard Box
Fig 2 Paper-cutting Scene of an Oasis
Fig 3 Plastic Model of an Eastern Well
Fig 4 Paper Cut-out of an Eastern Shepherd

HAMMURABI

This chapter deals with the life and times of King Hammurabi, one of the first law-givers mentioned in history. (For handwork lessons in connection with the cuneiform writing of the Babylonians, see Volume I, page 121.) In the oral lesson an account is given of the stele showing Hammurabi receiving the laws from the Sun-god. Most of the handwork exercises given on the accompanying plate are based on this interesting archaeological specimen

At intervals throughout the historical series, illustrations of cut-outs of figures in contemporary dress are given. These are drawn in bold lines so that the teacher may trace and hectograph them for class use Several such pictures may be incorporated into a useful Time Chart to aid in the visual teaching of the history, and to give the children a clearer conception of the time periods involved.

The first model suggested is a comparatively simple one—that of Hammurabi's chair or throne as seen on the stele. Older children might be allowed to draw the development on plain paper, using rulers for measurements. Younger children should use carton paper ruled in 1 in squares. The development on squared paper is seen in Fig. 1 A. The seat (Fig 1 B) is an oblong of paper 2 in by 1 in., having two 1 in. square flaps It will be advantageous if the development of the seat be made below the drawing of the chair (Fig. 1 A), for the children will then see the relation of its measurements to those of the back of the chair into which it is to fit. While the chair is still in the flat, its decoration should be added. As will be seen, the design is a comparatively simple one, consisting of rectangular masses In order to simulate beaten gold, the panels might be of a yellow colour alternating with black. The body of the chair should also be painted black. In fixing together, one flap of the seat should be pasted into position and held securely while setting, then the seat should be "squared" and the other flap fixed, Fig 1 C.

The next exercise is a plastic model of the stele In order that the final result may be on a large scale, the children should be allowed to work in pairs The first part of the model is a regular cylinder, which is produced by rolling a mass of clay on to the modelling board, Fig 2 A When sufficient regularity has been attained, gentle pressure is applied at one end during the rolling This will produce the spindle shape, Fig 2 B. The tapered end is rounded off and cut as shown in Fig. 2 C to produce a small platform. It is on the background of this platform that the group, shown in the enlarged sketch Fig. 2 D, is built "Built" is a suitable expression, for the children take small masses of clay, model them into the shapes required, and press them gently on to the background in the following sequence. king's head, body and right arm with sceptre, left arm and hand, and finally one side of the rectangular seat. The god may be added independently. For detail work the point of the modelling tool is used, and the body of the shaft is impressed with cuneiform characters, Fig. 2 E. When dry, the whole is painted black.

Fig 3 shows the cut-out of a Babylonian figure which should be painted in bright browns, yellows and reds.

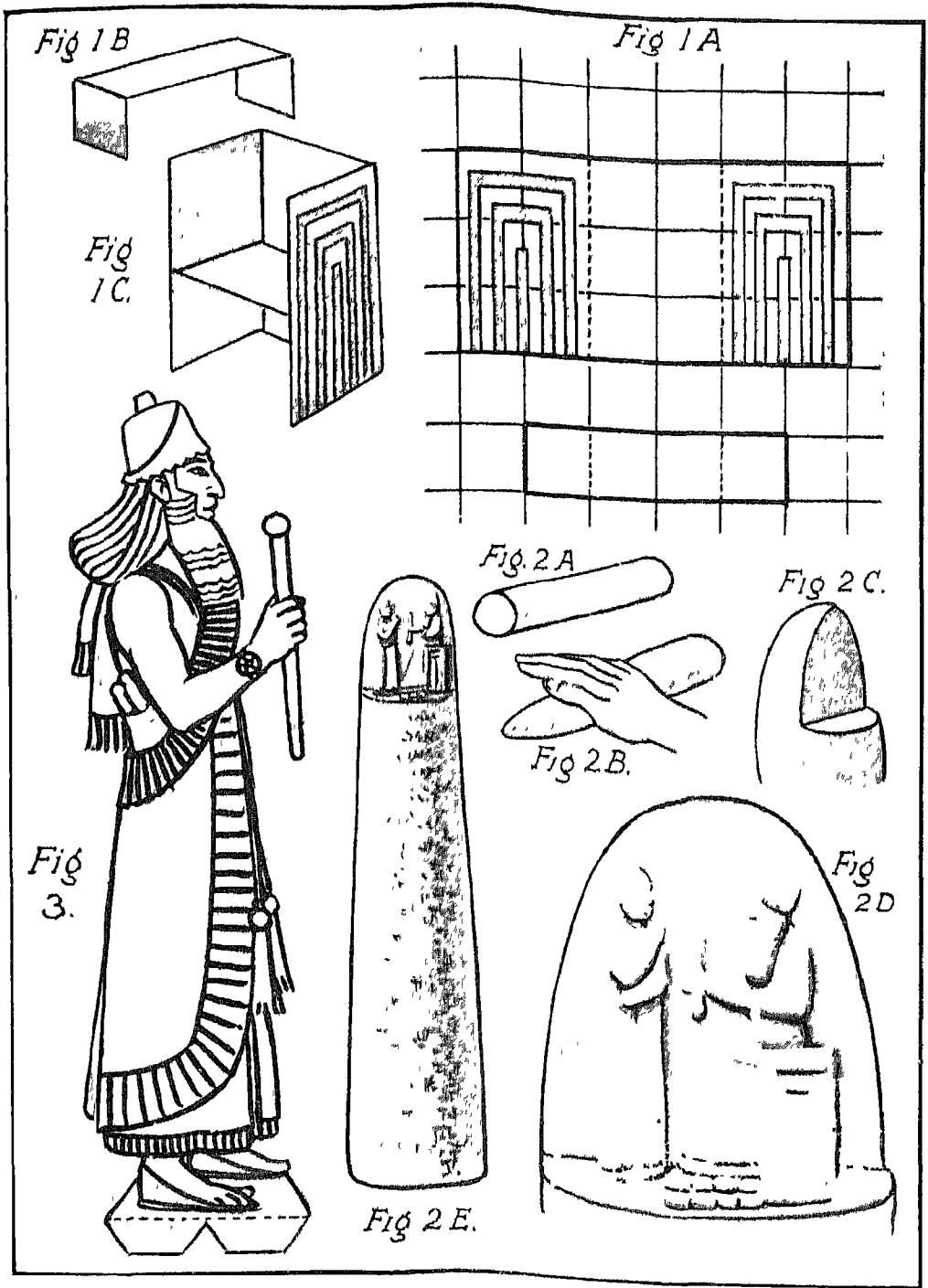



PLATE II.

FIG I PAPER MODEL OF HAMMURABI'S CHAIR
FIG. 2. PLASTIC MODEL OF THE STELE
FIG. 3 CUT-OUT OF A BABYLONIAN MAN

JOSEPH

This lesson is closely associated with the Bible lessons given in the classroom. In addition, the children gain a glimpse of life in Ancient Egypt, hence our suggested handwork exercises are connected with this aspect In Volume I. various exercises associated with early life in Egypt have been given under such titles as "The Clever River-Men," "The Land of No Rain," and "The Land that Never Changes." Some of these models might be used to amplify those given on the accompanying plate. The co-operative spirit is one to be encouraged in the school, and the models made by the younger children might be shown to illustrate the lesson under consideration. If the younger children know that their models are to be used in this way, it will give them a greater incentive to produce good work.

The top picture on page 19 in this volume is an illustration of Canaanites trading in Egypt Fig. 1 A shows how the lyre may be utilised as an exercise in paper-cutting On a folded piece of tinted paper the outside of the lyre shape is cut freely with the scissors. Next, holding the solid shape, the inside line is cut. The inside is removed, the narrow shape remains, and this is opened out to form the symmetrical lyre, Fig 1 B. This may be mounted on to a background sheet, and the strings added in pencil lines. More proficient children should use the shape as a pattern, and trace it on to medium card. When this is cut out, two or three strings may be added with needle and thread.

No lesson on Ancient Egypt would be complete without models of the Pyramid and the Sphinx To make the Pyramid (Fig. 2 A) a rough mass of clay or plasticine is taken and pressed on one sloping side downwards on the modelling board to produce a flat triangular surface. By rotating the model and pressing on its three other sides in succession, the four triangular planes are produced, Fig. 2 B.

The well-known Sphinx in its weather-beaten, eroded condition, makes a simple and appropriate plastic model. A triangular body shape, with two outstretched paws is built up (Fig. 3 A), and this is surmounted by a spherical head and two side pieces The children now model this to shape, cutting it here and there with the modelling tool to give the figure its ancient appearance, Fig. 3 B.

Fig 4 shows a paper-cutting scene which might form the cover design for a scrapbook of brown paper leaves to hold the child's collection of Egyptian pictures. Begin with a rectangular sheet of pale blue paper, sticking it on to a large brown sheet, then add, in the following order, a yellow rectangle for ground, a pyramid in orange and dark brown, a sphinx in white drawing paper crayoned as realistically as possible, and finally the sand dune shapes in orange coloured paper It will be noticed in the diagram that certain of the pieces overlap This method helps to give a sense of completeness to the finished picture.

A simple model of a Nile boat may be made from stout paper or thin card and a match-box case. Two similar strips of the shape shown in Fig 5 A are cut and stuck to the sides of the box (indicated by dotted lines). The two curved ends of the paper sides are bent inwards and pasted together on their inner edges to form the bow and stern, Fig. 5 B. A kindergarten stick is thrust down the centre of the box, and rigging is added with needle and thread. A sail is cut on folded paper, Fig. 5 C. The completed model is illustrated at Fig. 5 D.

The figure of the Egyptian (Fig. 6) is coloured in orange, red and black tints.

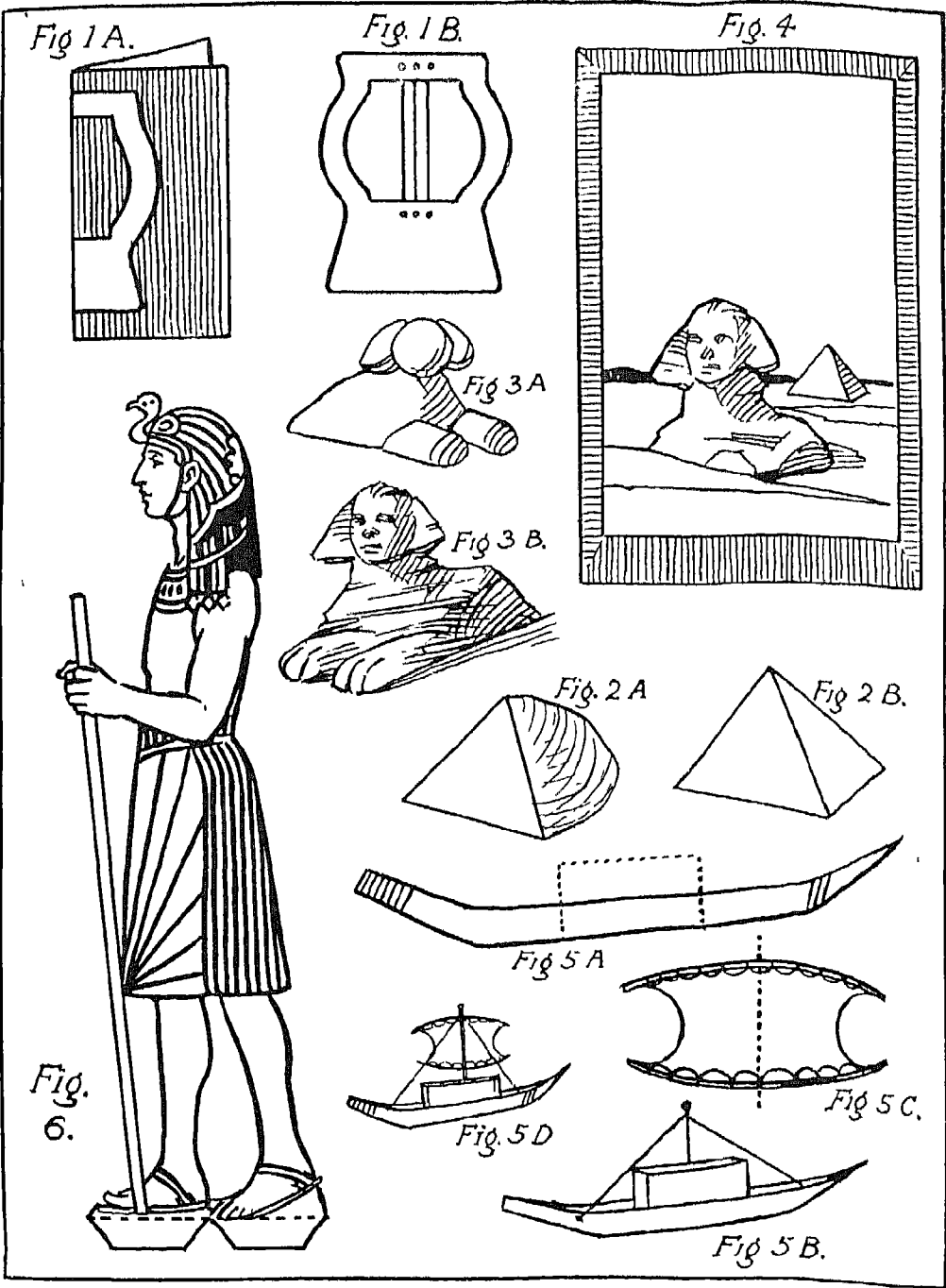



PLATE III

Fig 1 Egyptian Lyre in Cardboard
Fig 2 Plastic Model of a Pyramid
Fig 3 Plastic Model of the Sphinx
Fig 4. Egyptian Paper-cutting Scene
Fig 5. Egyptian Boat Modelled in Card
Fig 6 Paper Cut-out of an Egyptian

THESEUS

In this lesson the children get a glimpse of early Greek life and mythology. Exercises dealing with the Greeks proper will be given at a later stage when their authentic history is being studied Children enjoy illustrating stories that are told in the classroom, and this is an example where, to a knowledge of good literature, is added knowledge of historical value.

The story opens with the significant discovery by the Greek boy Theseus of the great stone buried in the sand. Beneath the boulder he found a short sword and a pair of sandals The first model illustrated is that of the Greek sword and its scabbard. For practical reasons the scabbard is made first. The children take a strip of thin card, score it down the middle with a light cut, and fold it as shown in Fig 1 A Four tabs or flaps are left when cutting to shape, and these are folded round to close the scabbard To close the end, two decorative pieces (Fig. 1 B) are cut (or rather one is cut and used as a pattern to cut the other) on folded paper to secure a symmetrical result. Two small rectangles are pasted to the front and the back of the other end, Fig. 1 C Next, the Greek short sword is cut, again on folded paper, the children taking care that the broadest part of the blade is of the right size to slip into the scabbard, Fig. 1 D The scabbard should be painted a bright yellow colour to represent gilt, with black decoration; the blade of the sword may be stained with school ink to represent steel, and the handle painted yellow and dark brown. When dry, the sword is placed inside its scabbard, Fig. 1 E.

In addition to the sword, a pair of sandals was discovered by the young Greek. The sandals will form an exercise in plastic modelling. With the point of the tool a foot shape is marked on the modelling board and tiny pellets of clay are fixed to cover the shape, Fig 2 A. When the space is filled the irregular surface is smoothed with the ball of the thumb to form a flat sole, Fig. 2 B A curved ankle piece is now fitted round the heel as shown in Fig 2 C; and this is pierced to receive two threads The model should be saved for a day or two to harden, after which it may be painted a dark brown colour.

The famous bed of the giant Procrustes forms our next model. Fig. 3 A shows the development of the main portion of the bed, which is of a shallow box lid shape Some of the children might be allowed to use a small box lid for the purpose The development of the legs is shown in Fig. 3 B, and one of them is shown fitted to the under side of the lid in Fig. 3 C. These legs as they are would be of too plain a character, so the children should arrange to make four decorative ends for the corners One decoration is prepared by cutting on folded paper, Fig 3 D. The decoration is folded, placed against a leg, and tested to see that it fits correctly and projects a little at the top This being correct, it is used as a template, or shape, for producing three others, which are fixed into position as shown in Fig. 3 E. A simple design in paint or crayon can be used to complete the model.

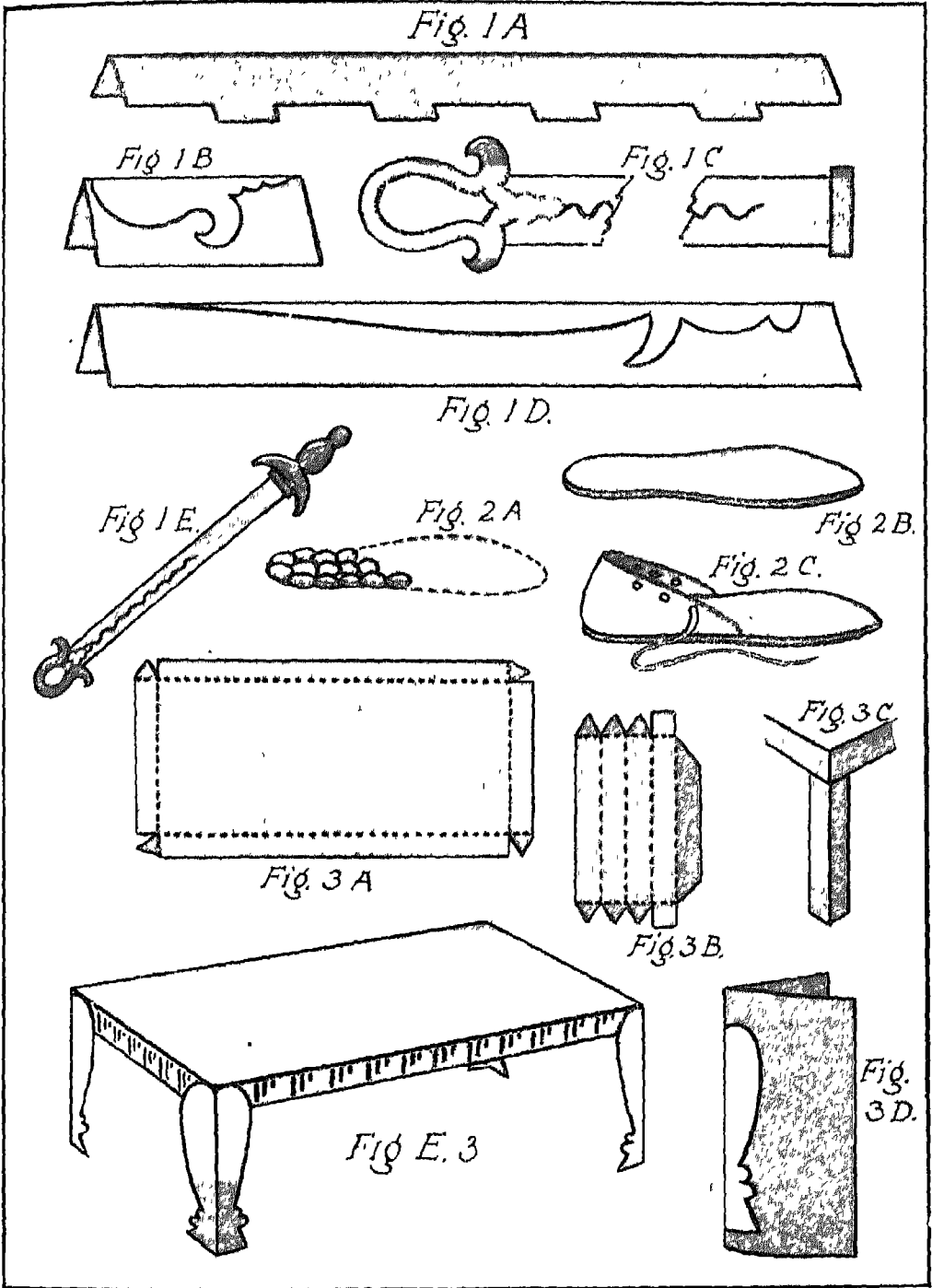



PLATE IV.

Fig. 1. Greek Sword and Scabbard made in Paper
Fig. 2. Plastic Model of Sandal
Fig. 3. Greek Bed in Card

ULYSSES

The children are here dealing with the stories of the Greek heroes, and in particular the story of the famous Greek warrior Ulysses and the taking of Troy. The ruse of the gigantic wooden horse, conceived by the ingenuity of Ulysses, and the clever manner in which it was used in the sacking of Troy by the Greeks is one of never-failing interest to young children, and one that may be well illustrated by them

The accompanying plate shows how the children may make a model of the famous Wooden Horse of Troy. For this purpose a cylindrical mantle box, a rectangular box lid, and some thin cardboard will be needed (In some schools the caretaker will be able to supply a number of empty mantle boxes) The complete mantle box is taken, and either a square portion is cut away as shown in Fig. 1 A, or, if the cutting is too difficult a task for young fingers, a square patch of black paper is stuck on to it. If the cutting method is used, the portion removed should have a flap of gummed paper stuck to its lower edge, after which it is hinged to open and close in the manner shown. If a patch be stuck on, then a separate door is cut and fixed on to the body of the box. The next step is to prepare a paper or card gauge which is made in the following manner. Take an old piece of paper or card, and cut from it a rectangular portion of exactly the same length as the diameter of the cylindrical box. We have designated this as x inches on the sketch, Fig. 1 B. Naturally this will be done by experiment, and will call for a certain amount of judgment on the part of the children. The children now take the gauge, and placing it upon cardboard, draw a rectangular shape of three sides only, and using this as a base build upon it the shape of the horse's head, neck and chest as shown in Fig. 1 C. It will be noticed that small triangular flaps are left within the gauge shape. For less proficient children, the teacher might trace and duplicate the head shape For the rear end of the horse, a tail shape as shown in Fig. 1 D is prepared, but this is a simple matter, as it fits only along the back and one flap down

Before fixing the head and tail the legs must be dealt with. Fig. 1 E shows these, which, as will be seen, are provided with large triangular flaps at each hoof Two of each shape are cut, and may be applied to the sides of the mantle box either by paper fasteners (when it will be necessary to remove the box ends to fix them) or by adhesive. When the legs are placed in their correct positions, the children return to the head and tail shapes. These are stuck with adhesive to the middle line of the top of the box, as shown in Fig. 1 F. Note that, in fixing the small triangular flaps, these are turned alternately to the front and back Now comes the final mounting of the model horse. A box lid is taken, and four slits are made on its top. Through the slits the triangular flaps for the hoofs are thrust, bent backwards and stuck. Three kindergarten sticks are pushed through the lid to form axles (Fig. 1 G) and cardboard wheels are added to them; a hole is made in the front to take a piece of string for pulling the horse along. Finally, a small ladder of kindergarten sticks and match stalks is reared against the body When completed the model may be painted in cream or pale brown colour, with the mane and tail black

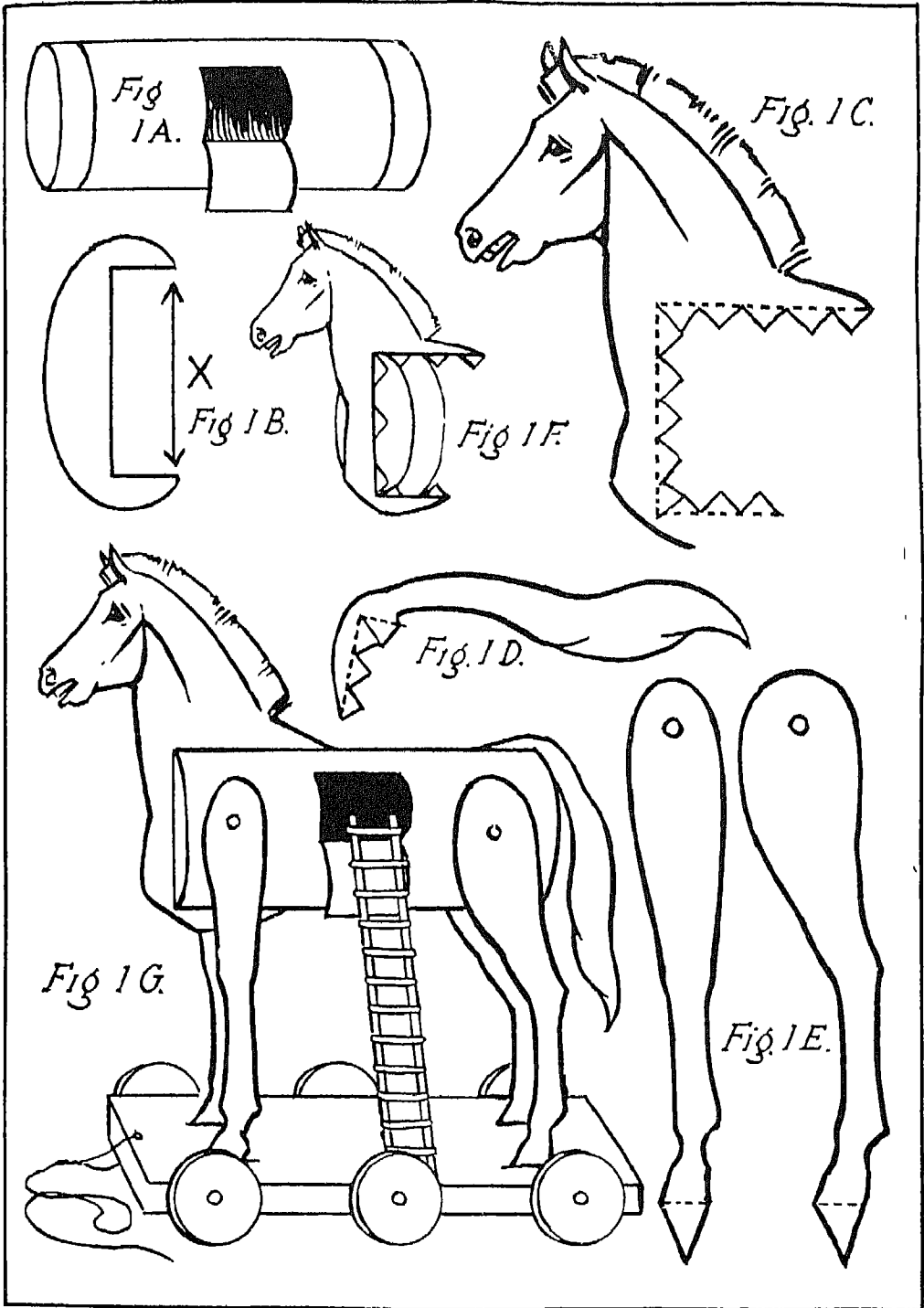



PLATE V.

Toy Project associated with the Wooden Horse of Troy

SOLOMON AND SENNACHERIB

These lessons deal with the wise King Solomon and the cruel and terrible King Sennacherib.

The first model shown is that of an Assyrian battering-ram, the prototype of the armoured tank of the World Wars The illustration is taken from an ancient Assyrian wall sculpture; the children should be reminded of this, for it is fair to assume that the upper platform would accommodate considerably more than the two archers shown in the illustration on page 63 For this model a rectangular box (Fig. 1 A) may be used. It is inverted, so that the lid now forms the base The lid is also inverted; and in order to attach it to the edges of the box, the sides of the box and the lid are covered with brown paper stuck round to hold both together. The back end of the box is removed, and the front end is cut away as shown in the diagram to receive the battering-ram Next, four kindergarten sticks are thrust through,—one in the body of the box, and three through the inverted lid. The sticks are fitted with pairs of card-board wheels. Two holes are made at the front, and through these a cord is passed. The ram itself (Fig. 1 B) is modelled of clay, bored with two holes and put away to harden. Fig 1 C shows how the ram is fitted to the box, the kindergarten stick acting as an axle, the other hole being threaded with a cord for manipulating the arm upwards and forwards (The children can put their hands inside the box through the open end for the purpose of fixing) Next, the tower part is developed, Fig. 1 D. The distance x in is equal to the width of the end of the box; the horizontal dotted line shows where the box top will fit. This shape is fixed round the box in the manner shown in the sketch of the finished model (Fig 1 E), and the whole should be coloured with brown and black pastel

The winged Assyrian bull is a helpful plastic model to use in connection with this lesson. To a shaped body part (Fig 2 A) four legs, a head and two wings are added This is modelled into shape, details being marked with the point of the tool. When the bull is completed, a fifth leg, characteristic of the sculpture of this age, is added to the front, so that from the horizontal view, the creature is shown as having four legs. Naturally this will amuse the children.

In connection with the story of King Solomon we have selected a plastic model of a Phoenician vessel. In the "Hadow Report" on the junior school it is suggested that the evolution of house building may well be illustrated with models. The growth of ship building from the primitive dugout to the modern liner might well be illustrated in a similar way. The first stage in modelling the Phoenician ship is to build up a long, narrow, rectangular slab. To one end is fitted a conical ram and to the other a conical prow. Short rectangular slabs are fitted cross-ways, Fig. 3 A. To these slabs a long shallow tray is fitted (Fig. 3 B), and tiny circular shields are pressed on to the sides of it. The model is completed by adding several match stalk and paper oars, a large steering oar at the prow, and a kindergarten-stick mast with a paper sail and cotton rigging, Fig. 3 C.

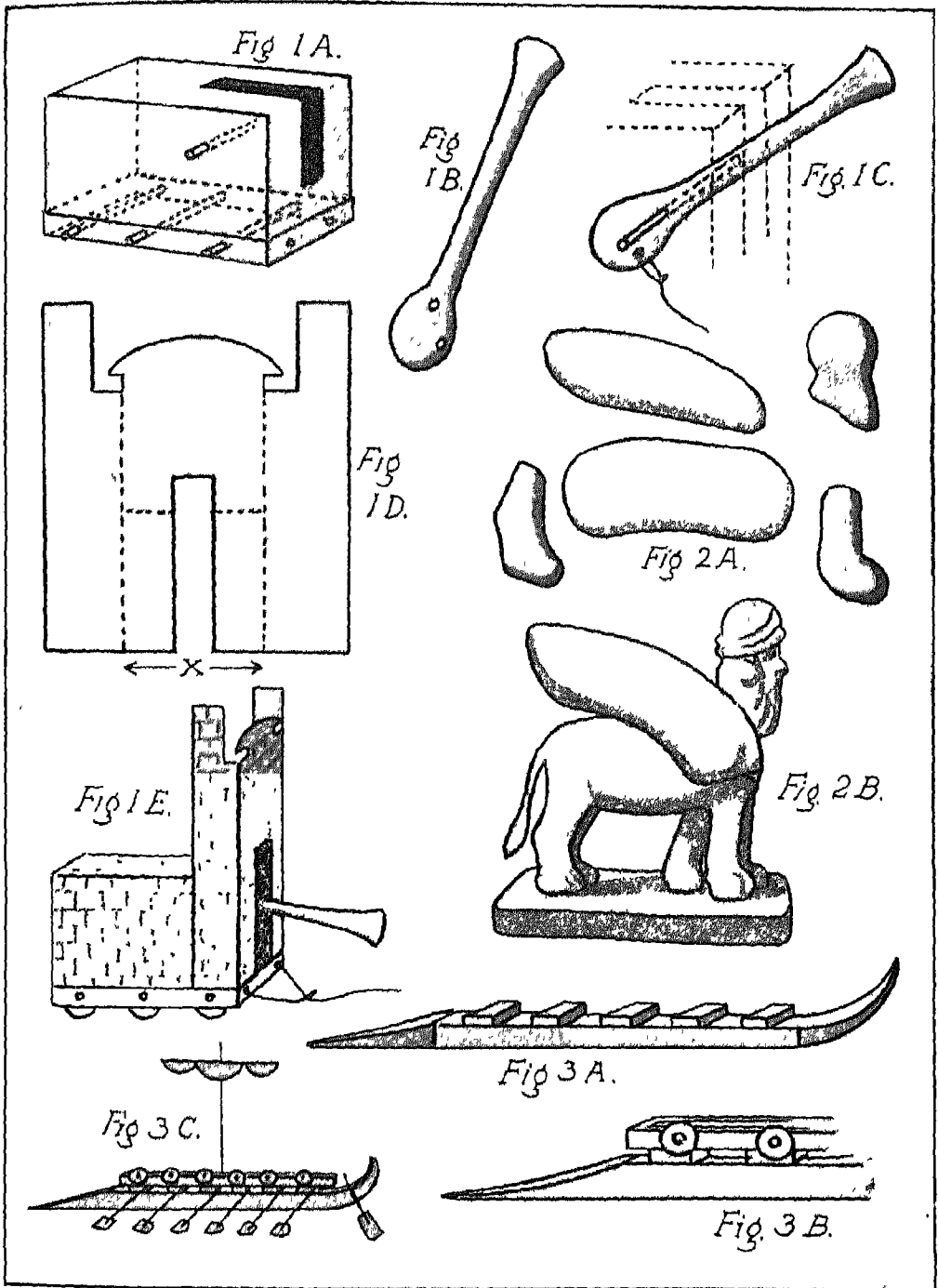



PLATE VI

FIG. 1. ASSYRIAN BATTERING-RAM MADE FROM A CARDBOARD BOX
FIG. 2 ASSYRIAN WINGED BULL MODELLED IN CLAY
FIG. 3. MODEL OF A PHOENICIAN SHIP

THE ASSYRIANS

Ruthless as the Assyrians were in destruction they were also great builders From their wall sculptures, crude as they are in some respects, yet singularly truthful and beautiful in others, we are able to obtain information as to the general form of their buildings and city walls

The first model, that of a city gateway, is a comparatively simple one to make, for it will be noticed that it is practically all based upon the square and the rectangle. For younger children and more backward classes, the teacher might use carton paper ruled in 1 in. squares to simplify the task of measuring. Fig 1 A shows the development of one of the pillars of the archway It consists of four sides 4 in. by 1 in., a square end of 1 in. with flaps of ¼ in. which are fitted as shown in the diagram. At the top of this pillar a larger and overhanging tower is needed The development of this is shown in Fig. 1 B. It consists of four square sides of 1½ in. each and a 1½ in. square base, together with ¼ in fixing flaps. The pillar is glued together, then the tower (which has its top and open edges cut in characteristic zig-zag pattern) is glued to the pillar. Two of these pillars are made and the next task is to make the central portion containing the doorway. This is a sheet of fairly stout cardboard, cut with a zig-zag top, about 4 in wide, and high enough to reach almost to the top of the pillars. It is provided with flaps at the two sides and base, and is attached to the middle of the pillars as shown in Fig. 1 C. In the model the flaps are gummed behind so that they will not show. Two shorter widths of card are cut similarly to be attached to form the outside walls of the gate. The doorway itself should now be cut away. All the assembled parts are next glued on to the bottom of an inverted box (Fig. 1 D), round the edges of which a long projecting strip of stout paper, cut with the zig-zag edge, has been stuck. The whole is tinted a pale drab colour, with black markings to represent stonework.

The Assyrians were great lovers of hunting, for which sport they used the horse chariot. A model chariot appears in the section of Volume I, page 126, under the chapter "Horses and Chariots". A further model is illustrated here in the accompanying plate. Fig. 2 A shows the development of the body of the chariot, which consists of three sides, a base and fixing flaps. In order that the two curved sides may be symmetrical in the finished model, the children should draw a paper shape of one side, place it in position on the cardboard and trace round it. Then for the other side reverse the paper shape and again trace round it. The body is glued up, a kindergarten stick is glued on the under side and two wheels of card are fitted as shown in Fig. 2 B. Next a characteristic sunshade is required. This is a circle of cardboard with a segment removed (Fig. 2 C) and its edges pasted together. Within the point a small portion of plasticine is stuck, and into this a kindergarten stick is thrust (Fig. 2 D) and a rectangular piece of paper is attached at the back. In order to fix the stick, a piece of cork is glued to the base of the chariot To complete the model, a narrow strip of paper is pasted from the shaft to the front of the chariot, and two crossed quivers are stuck to the chariot side, Fig. 2 E. The whole of the model is painted brown and yellow, and the sunshade red

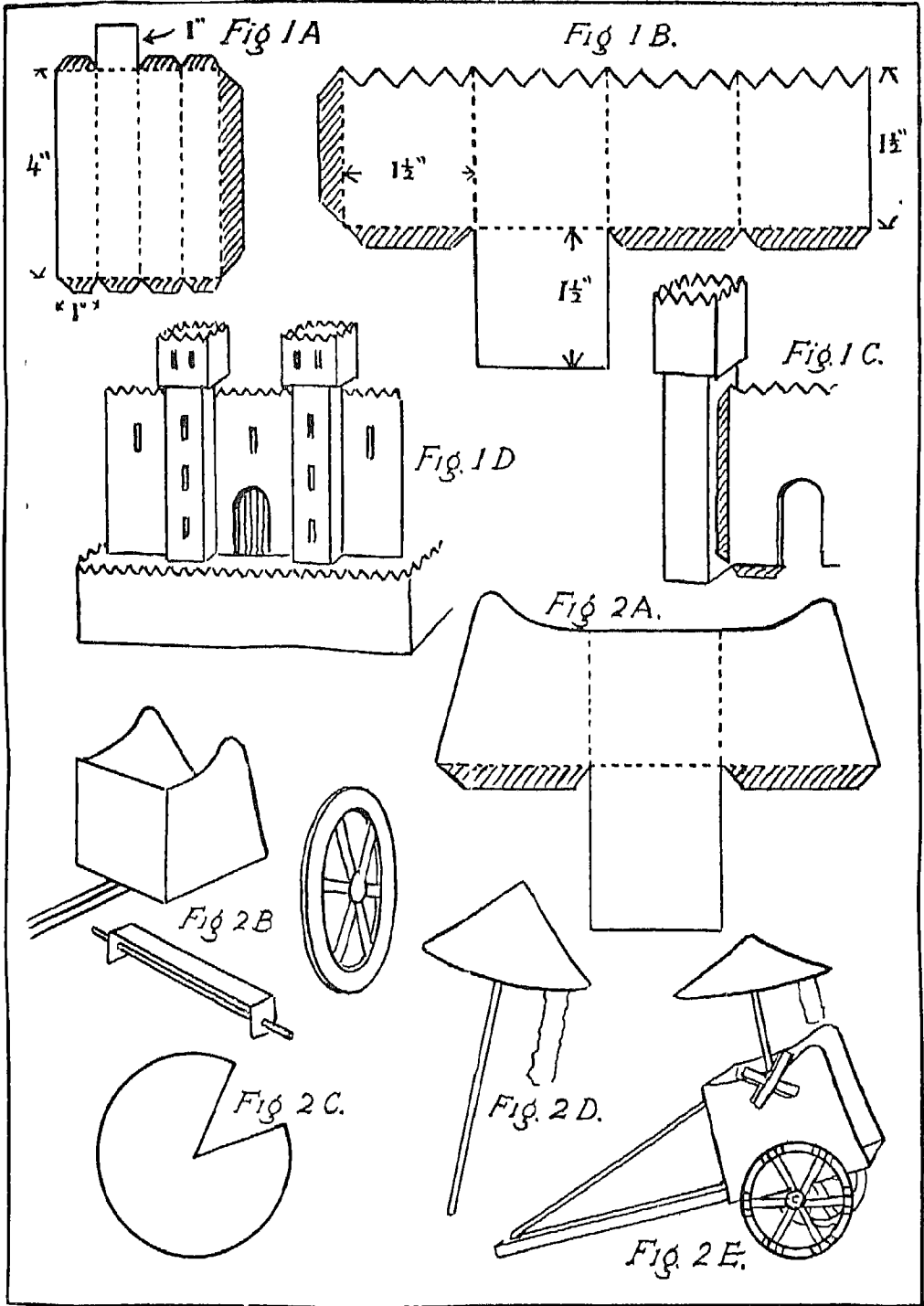



PLATE VII.

FIG 1 AN ASSYRIAN CITY GATE MODELLED IN CARDBOARD
FIG 2 AN ASSYRIAN CHARIOT MODELLED IN CARDBOARD

NEBUCHADNEZZAR AND CYRUS

The Children's Story in the historical section deals with the lives of Nebuchadnezzar, the king who took the Jews to Babylon; and of Cyrus the Persian, the king who helped the Jews. They are told that Nebuchadnezzar was famous as the builder of a new and wonderful city of Babylon, with its temples and palaces, its avenues of trees, its high walls with houses on the top, its grand bronze gateways and its many-coloured glazed statues It is therefore appropriate that, in this handwork lesson, the architectural aspect should be stressed.

The usefulness of co-operative work in the classroom has already been noted As there is a considerable amount of work to be done in the making of a Babylonian temple, it is advisable that it should be treated as a group model by the whole class. Alternatively, two or three such models only should be made, the class being divided into sections, each working under a team leader. As will be seen from Fig. 1 A the basis of the model consists of three or four shallow boxes, one set upon the top of another to form tiers. The boxes should be covered with white cartridge paper if water colours are to be used for the final decoration of the model, or with brown paper if pastels are to be used Older children should be allowed to construct the box shapes in thin cardboard or stout paper. The Babylonian buildings exhibit peculiar sloping side walks or *ramps*. These ramps, which are wedge-like shapes, must next be considered Taking a side of the lowest box, a diagonal is sketched lightly on it (Fig. 1 B), and from this, using its exact measurement, a triangular shape is cut (Fig. 1 C) of which the vertical side is equal to the height of the box side This shape is used as a pattern, and a triangle (x) is drawn on the paper. Fig. 1 D shows how to this are added a rectangle, another triangle, and an end and flaps to produce the ramp. Four of these are cut and stuck to the box sides, Fig. 1 E Having completed the lower ramps of the first box, the process is repeated with the next box, and so on with the remainder. To finish off the model, a dome of clay is prepared and fixed to the middle of the top box, Fig. 1 F. The whole may now be painted a stone colour (Chinese white plus a little yellow), to represent a building. Details can be added with grey water colour.

The second exercise shown is that of a Persian winged sphinx to be modelled in clay or plasticine. This is made in a similar manner to that illustrated in the previous plate, the main difference being that this figure is shown in a recumbent position. To achieve this, after the body has been modelled, the two front legs are stretched forwards and the two rear ones bent at the joint

A lesson on the Persians would not be complete without reference to the "pomp of yesterday" Figs 3 A and 3 B show cut-outs of a Persian nobleman and his servant with the customary sunshade of those days. These figures should be traced and hectographed for the children to cut out and colour in bright red, yellow, purple and blue. To make the handle of the sunshade rigid, gum a kindergarten stick on one side of it.

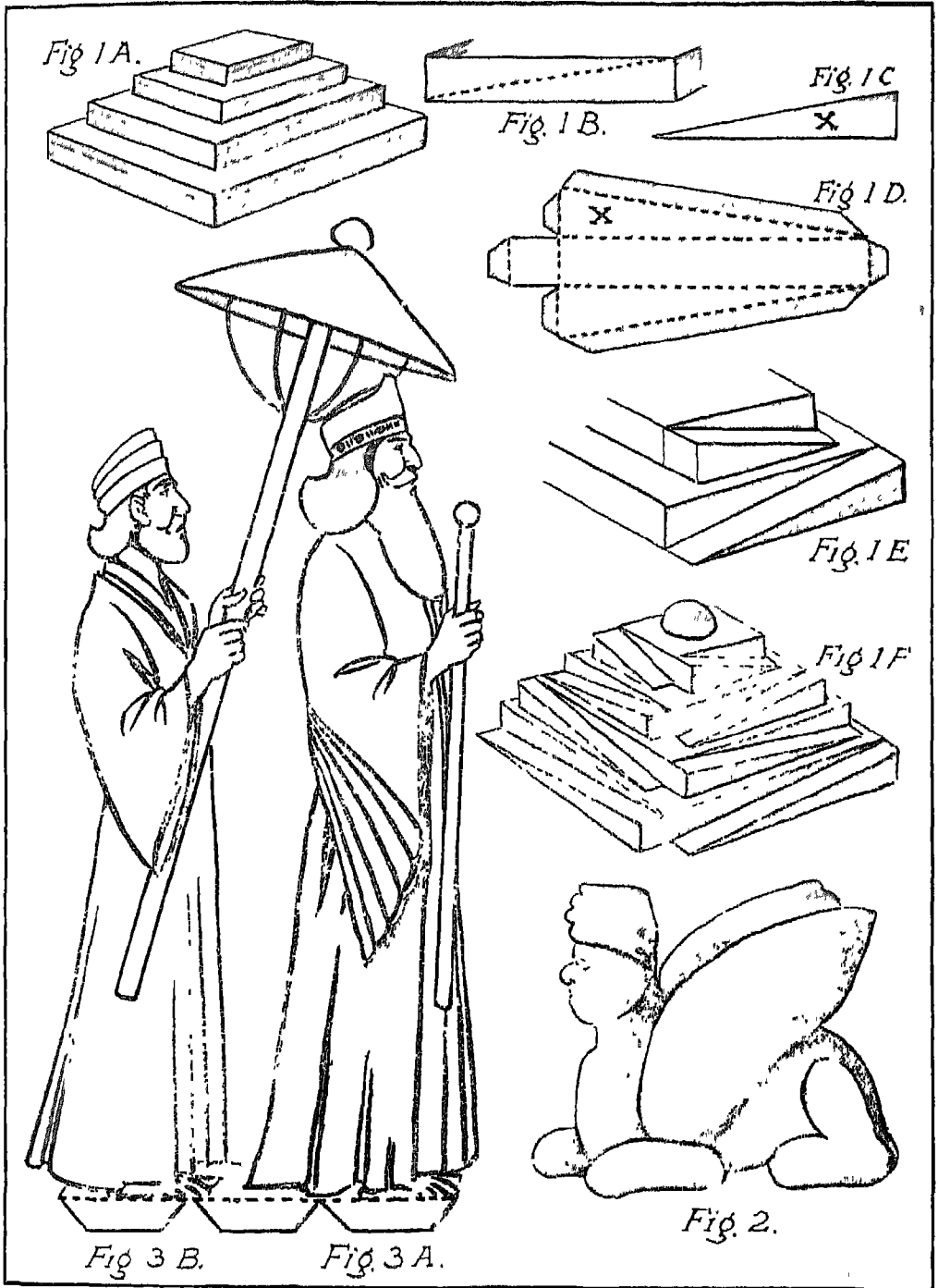



PLATE VIII.

FIG 1 BABYLONIAN TEMPLE MODELLED IN CARDBOARD
FIG 2 PERSIAN WINGED SPHINX MODELLED IN CLAY OR PLASTICINE
FIG 3 PAPER CUT-OUT OF A PERSIAN NOBLEMAN AND ATTENDANT

ALEXANDER THE GREAT

The Children's Story in this chapter partly deals with the war between the Greeks and Persians. The children will be interested in the daring deeds of the Greek heroes, and the purpose of this handwork lesson is to illustrate some of the soldiers' equipment. The Class Picture No 22 will be helpful in this lesson The teacher should not fail to utilise the evolutionary aspect of the matter. The children should be led at this stage to take a retrospective view of their history lessons They have seen how the earliest men used roughly hewn stones, fashioning them into tools and weapons; later they learned how a beginning was made in the smelting of metals. The equipment of the Greek soldier exemplifies a great advance in the mastery of working in metal. In the equipment of the Greek soldier the children may be led to appreciate something of the Greek cult of the beautiful. The illustrations still available on Greek vases, which can be seen in our museums, give us unmistakable proof of the Greeks' love of the beautiful.

The first model illustrated on the accompanying plate is that of a Greek soldier's helmet modelled in clay or plasticine. If the latter be used, yellow to represent gilt will be preferable for the helmet, and bright red for the plume. Take a ball of plastic material in the palm of the left hand, rotate it, and at the same time insert the right thumb into the top to produce a hollow hemispherical shape as seen in Fig. 1 A. A flattened pointed leaf-like shape is pressed out and fixed to the back of the helmet, Fig. 1 B. To the shape so made, a narrow strip is fixed and decorated with incised ornament to produce the effect of the folded-up chin strap, Fig. 1 C. Next (Fig. 1 D), a wedge-like strip, fairly solid, is modelled quite straight, and afterwards bent to the shape of the back of the helmet. When complete, it is fixed carefully to the helmet, and is marked with the point of the needle tool If the model be made of clay, it should be put away to harden, and when thoroughly dry it should be tinted with yellow water colour, the plume being coloured a bright red or blue.

The next model, a Greek shield, takes the form of a paper-cutting exercise. On a folded sheet of stout paper an oval shape is cut (Fig. 2 A) and allowed to remain folded. This oval shape is again folded, Fig 2 B A rounded portion is cut away carefully with the scissors This portion that is cut should be about ⅜ in. from the edge. The small straight part beyond the dotted line is also cut away. The resulting shape will be similar to that shown in Fig. 2 C. When this is opened out, the result will be the finished shield shape (Fig 2 D) which is painted yellow, with a brown border and a brown snake pattern such as was commonly used in those days.

Fig. 3 A shows another type of Greek shield This might be made from the lid of a round cardboard box, or cut directly from cardboard. It is provided with a dark border and a black silhouette of Pegasus, the winged horse. Two strips of paper are fixed behind the shield for holding it, Fig. 3 B. (The smaller one was used for grasping the shield, through the larger one the forearm was thrust.) The Greek bow was usually made of deer antlers held together by a metal socket. This model (Fig. 4) should be made with clay on a fairly large scale.

A cut-out of a Greek warrior for tinting is shown in Fig. 5.

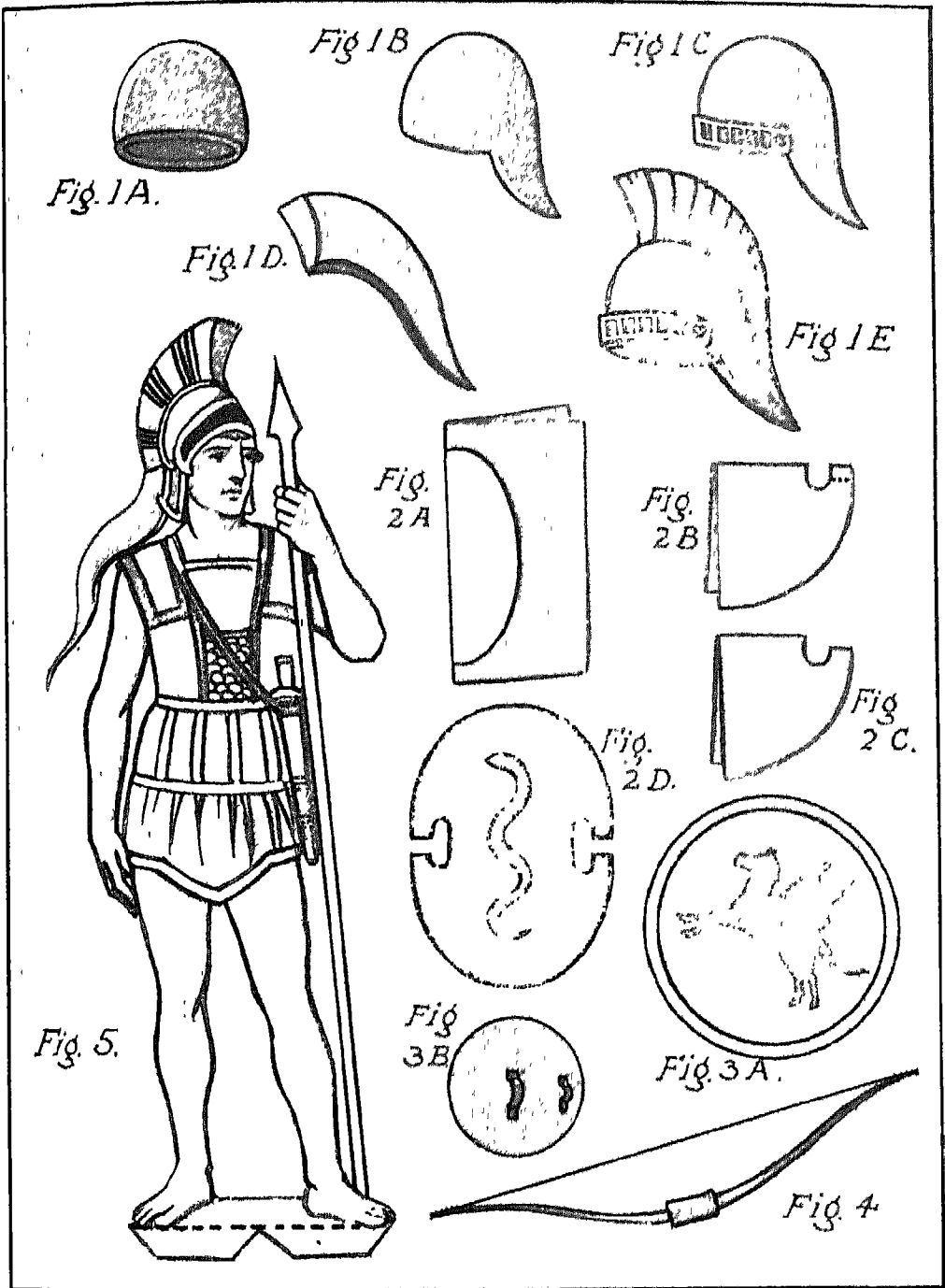



PLATE IX.

Fig 1 Plastic Model of a Greek Helmet
Figs. 2 and 3 Greek Shields made by Paper-cutting
Fig. 4 Model of a Greek Bow
Fig. 5. A Cut-out of a Greek Warrior

A BOY IN ATHENS

Having studied the Greeks in war, it is only fitting that a lesson should be devoted to their domestic life The historical section, Chapter XIII., treats of Greek social life in an interesting manner that the children will appreciate

The first model shown takes the form of a paper-cutting exercise of a Greek vase. It will be remembered that some vases were given in the First Year's Course, but here a more difficult pattern is attempted, and the children are required to add decoration On a folded sheet of pale brown or buff paper the main shape is cut, Fig 1 A. This is first opened out, then folded narrow strips of pale yellow paper are cut, measured carefully, and superimposed on the neck and base as indicated by the dark portions of the illustration. The plate on page 109 of this volume gives illustrations of some decorated jugs or vases, typical of those used in a Greek household. The next model is that of such a jug to be constructed in clay and afterwards coloured. Fig. 2 A shows the main parts of this model,—a short cylinder, a sphere and a circular slab. The sphere is rolled first and to this the cylinder is added. By placing the right little finger on the cylinder top and rotating the whole, applying pressure, the cylinder will be gradually hollowed. (There is no need to hollow the sphere, which may remain solid.) The joint of the cylinder with the sphere is smoothed out, the top of the lip is depressed a little at front and back. To fix the base the jug is placed gently upon it, and pressing a little, it is slowly rotated to join the two together. A snake-like handle is rolled and fixed as shown in Fig. 2 B With the point of the modelling tool, a neat pattern is incised; the dry model is painted black, the design an orange colour and the inside of the neck a reddish-orange.

Fig. 3 A shows the initial stages of a co-operative paper-cutting model to illustrate a wreath of olive leaves, the prize of an Olympian prize-winner. The children cut leaf patterns in green tinted paper, Fig. 3 A. On a large sheet of paper the teacher sketches lightly in chalk a circle, Fig. 3 B. The children next arrange their leaves carefully to overlap and form the completed wreath, Fig. 3 B. At the bottom, strips of bright red paper are used to represent the binding. Several of these wreaths would make a pretty wall decoration.

Fig. 4 A shows the several parts of a clay model of a boy's top. These are held together by a match stick, Fig. 4 B.

To make a plastic model of a Greek table first prepare a rectangular slab, Fig. 5 A From the corners (Fig. 5 B) cut away cubes, and afterwards insert larger cubes into the recesses, Fig. 5 C. Match sticks, or short lengths of kindergarten sticks, are thrust into these to act as legs, and an incised pattern is added.

The model of the Greek lamp is made by modelling a shallow saucer shape (Fig 6 A), and fixing to it a solid handle and spout A hole should be made with a bent piece of wire to connect the spout with the interior.

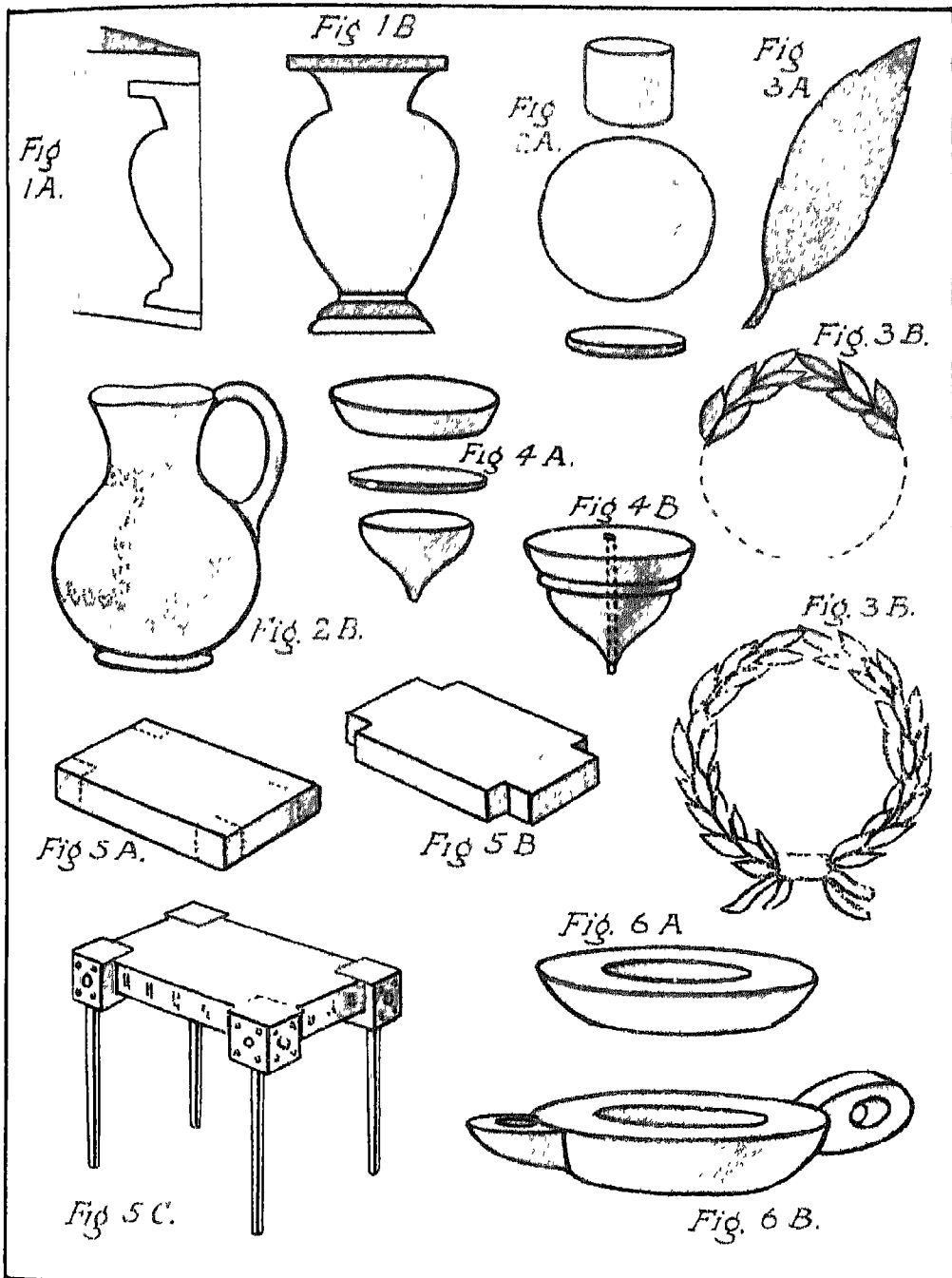
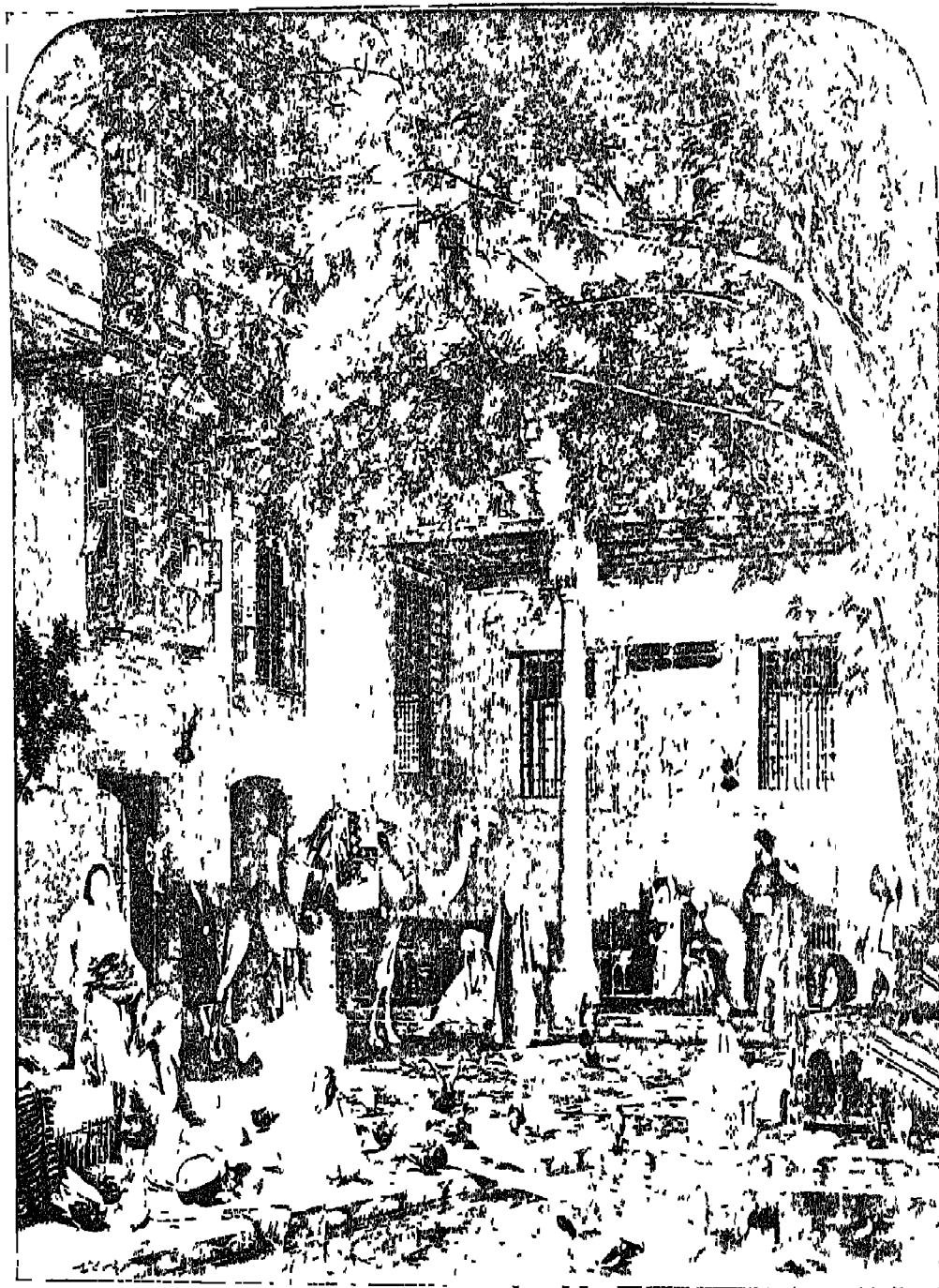



PLATE X.

FIG. 1 A GREEK VASE IN PAPER-CUTTING
FIG 2 PLASTIC MODEL OF A GREEK JUG
FIG 3 CO-OPERATIVE PAPER-CUTTING—A WREATH OF OLIVE LEAVES
FIG 4. PLASTIC MODEL OF A BOY'S TOP
FIG 5. PLASTIC MODEL OF A GREEK TABLE
FIG. 6 PLASTIC MODEL OF A GREEK LAMP

THE SECOND YEAR'S COURSE
OF
ENGLISH

From the picture by J. F. Lewis] [*By permission of the Tate Gallery*

THE COURTYARD OF THE COPTIC PATRIARCH'S HOUSE IN CAIRO

THE TEACHING OF LITERATURE

Scope of the work.—A General Introduction on the "Teaching of English in the Primary School" is given in Volume I, page 131 of the Encyclopaedia. The accompanying Model Lessons on story-work for the second year follow closely the lines laid down in the General Introduction. These lessons are intended as a guide to reading in the classroom, the exercises being designed to cover all the essential points in the study of prose

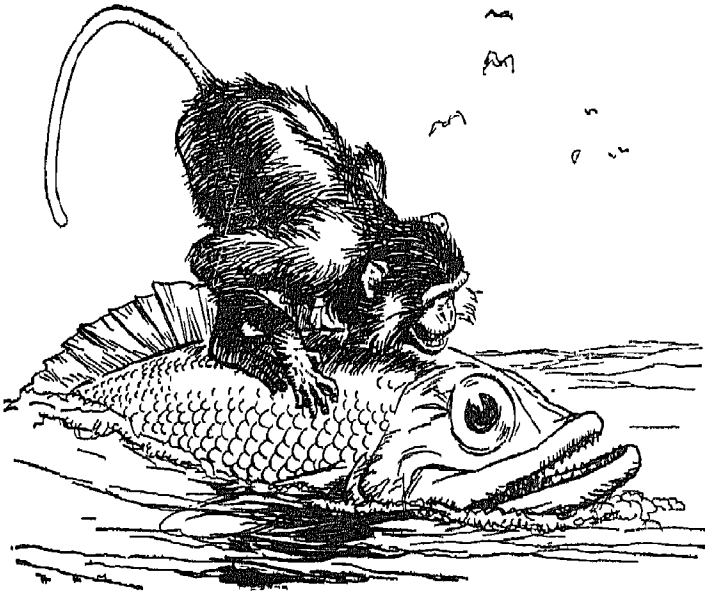
The material selected for reading should always be of the highest literary merit compatible with the age of the child. It should be chosen from a variety of authors, both old and new, for stories which are "written up" by one person, however well done, detract from the interest and educative value which is provided by the varying styles of different authors. Variety is to be found among the Model Lessons in this volume, where each story supplies a fresh outlook from the one preceding.

The exercises following the reading are intended to help the teacher in keeping some check on the value of the children's private study, and to encourage deeper comprehension. They cover oral discussion and simple written exercises which bear directly upon the story, and they are designed to bring out its full value and to provide for language study through the direct medium of the text. Unfamiliar words and phrases which occur in the story are brought up for discussion, word-study, memory work, tests of reading and exercises for composition are also supplied.

In addition to these more general exercises the intensive study of a passage chosen from the story has been developed. The method adopted for the study of such a *Marked Passage* is based on the article "Language Study" in the *Handbook of Suggestions for Teachers* issued by the Board of Education. An important extract from the Handbook is quoted in the General Introduction on page 133 of Volume I. of the Encyclopaedia.

The Model Lessons which follow are in the form of stories with their accompanying exercises They are an advance in difficulty upon those given for the First Year's Course. The general exercises which are set out in detail on page 136 of Volume I., are modified and supplemented to suit the older child In the treatment of the *Marked Passages* grammatical terminology has been avoided, and may be introduced at the discretion of the teacher. The questions are framed to give the child-mind exercise in handling the following points of language: (a) *grammar*—nouns, pronouns, adjectives, adverbs, verbs, possessive case; (b) *word-study*—synonyms, words of opposite meaning, choice and arrangement of words, alternative expressions, direct and indirect speech, (c) *punctuation*—capital letters, full stop, comma, question mark, inverted commas, apostrophe

The Model Lessons are included in a series of four books of pupils' readers compiled by the Editor and published by Messrs Macmillan & Co. Ltd., under the title of *Literature Old and New.*

Following the Model Lessons in this section are six original Plays which may be acted with the simplest stage properties, such as are easily obtainable in the classroom. The illustrations at the head of each play offer suggestions for costume. Two of them, *Sleepy Cecily* and *The Burnt Cakes* are specially suitable for boys Articles on the production of Plays which cover the four years in the primary school are included in Volumes VI. and VII.

THE JELLYFISH TAKES A JOURNEY

ONCE upon a time the jellyfish was a very handsome fellow His form was beautiful, and round as the full moon. He had glittering scales and fins and a tail as other fishes have, but he had more than these. He had little feet as well, so that he could walk upon the land as well as swim in the sea He was merry and he was gay, he was beloved and trusted of the Dragon King. In spite of all this, his grandmother always said he would come to a bad end, because he would not mind his books at school. She was right. It all came about in this wise.

The Dragon King was but lately wed when the young Lady Dragon his wife fell very sick. She took to her bed and stayed there, and wise folk in Dragonland shook their heads and said her last day was at hand Doctors came from far and near, and they dosed her and they bled her, but no good at all could they do her, the poor young thing, nor recover her of her sickness.

The Dragon King was beside himself.

"Heart's Desire," he said to his pale bride, "I would give my life for you "

"Little good would it do me," she answered "However, if you will fetch me a monkey's liver I will eat it and live."

"A monkey's liver!" cried the Dragon King. "A monkey's liver! You talk wildly, O light of mine eyes How shall I find a monkey's liver? Know you not, sweet one, that monkeys dwell in the trees of the forest, whilst we are in the deep sea?"

Tears ran down the Dragon Queen's lovely countenance.

"If I do not have the monkey's liver, I shall die," she said

Then the Dragon went forth and called to him the jellyfish.

"The Queen must have a monkey's liver," he said, "to cure her of her sickness."

"What will she do with the monkey's liver?" asked the jellyfish.

"Why, she will eat it," said the Dragon King.

"Oh!" said the jellyfish

"Now," said the King, "you must go and fetch me a live monkey I have heard that they dwell in the tall trees of the forest. Therefore swim quickly, O jellyfish, and bring a monkey with you back again."

"How will I get the monkey to come back with me?" said the jellyfish.

"Tell him of all the beauties and pleasures of Dragonland. Tell him he will be happy here and that he may play with mermaids all the day long."

PERSIMMONS

MERMAID

"Well," said the jellyfish, "I'll tell him that"

Off set the jellyfish; and he swam and he swam till at last he reached the shore where grew the tall trees of the forest And, sure enough, there was a monkey sitting in the branches of a persimmon tree, eating persimmons.

"The very thing," said the jellyfish to himself; "I'm in luck."

"Noble monkey," he said, "will you come to Dragonland with me?"

"How should I get there?" said the monkey.

"Only sit on my back," said the jellyfish, "and I'll take you there, you'll have no trouble at all."

"Why should I go there after all?" said the monkey. "I am very well off as I am."

"Ah," said the jellyfish, "it's plain that you know little of all the beauties and pleasures of Dragonland. There you will be happy as the day is long. You will win great riches and honour. Besides, you may play with the mermaids from morn till eve."

"I'll come," said the monkey.

And he slipped down from the persimmon tree and jumped on the jellyfish's back.

When the two of them were about halfway over to Dragonland, the jellyfish laughed.

"Now, jellyfish, why do you laugh?"

"I laugh for joy," said the jellyfish "When you come to Dragonland, my master, the Dragon King, will get your liver, and give it to my mistress the Dragon Queen to eat, and then she will recover from her sickness."

"My liver?" said the monkey.

"Why, of course," said the jellyfish.

"Alas and alack," cried the monkey, "I'm grieved indeed, but if it's my liver you're wanting I haven't it with me. To tell you the truth, it weighs pretty heavy, so I just took it out and hung it upon a branch of that persimmon tree where you found me Quick, quick, let's go back for it."

Back they went, and the monkey was up in the persimmon tree in a twinkling

"Mercy me, I don't see it at all," he said. "Where can I have mislaid it? I should not be surprised if some rascal has stolen it," he said.

Now if the jellyfish had minded his books at school, would he have been hoodwinked by the monkey? You may believe not. But his grandmother always said he would come to a bad end.

"I shall be some time finding it," said the monkey. "You'd best be getting home to Dragonland. The King would be loath for you to be out after dark. You can call for me another day. *Sayonara.*"

The monkey and the jellyfish parted on the best of terms.

JELLYFISH

The minute the Dragon King set eyes on the jellyfish, "Where's the monkey?" he said

"I'm to call for him another day," said the jellyfish. And he told all the tale.

The Dragon King flew into a towering rage. He called his executioners and bid them beat the jellyfish.

"Break every bone in his body," he cried; "beat him to a jelly."

Alas for the sad fate of the jellyfish! Jelly he remains to this very day

As for the young Dragon Queen, she was fain to laugh when she heard the story.

"If I can't have a monkey's liver I must needs do without it," she said. "Give me my best brocade gown and I will get up, for I feel a good deal better"

FROM THE STORY

1. Do you know?—What is the colour of a jellyfish? Has a jellyfish a tail and fins? Can a jellyfish swim? Can a jellyfish walk? Do doctors nowadays bleed their patients? Where do monkeys live?

2. Put in the describing-words.—He had —— scales and fins and a tail. "Heart's Desire," he said to his —— bride, "I would give my life for you." "Monkeys dwell in the trees of the forest, while we are in the —— sea." "Now," said the King, "you must go and fetch me a —— monkey." The Dragon King flew into a —— rage Alas for the —— fate of the jellyfish!

3. Put together.—

The jellyfish	went forth and called to him the jellyfish
His grandmother	was fain to laugh when she heard the story,
The Dragon	was a very handsome fellow.
The monkey	always said he would come to a bad end
The young Dragon Queen	was sitting in the branches of a persimmon tree, eating persimmons

4. Tell me.—What did the Queen want to cure her of her sickness? Why was the jellyfish the only fish who could get what she wanted? How did the jellyfish persuade the monkey to come with him? Why did the monkey want to get back quickly to the persimmon tree? Why did the jellyfish leave the monkey behind? What do you think is the meaning of *Sayonara*? How did the jellyfish become a jelly? What happened to the Dragon Queen?

5. Marked passage—Read the passage on page 158, and then think about it with the help of these questions—

Once upon a time the jellyfish was a very handsome fellow.

What kind of a story usually begins with *Once upon a time*? What other words often begin a story of this kind? Where do jellyfishes live? Are they very handsome? What word means the opposite of *handsome*?

His form was beautiful and round as the full moon.

Which word shows that the *form* belonged to the *jellyfish*? What does *form* mean here? What does *form* mean in this sentence?—They sat down on an old form Which words describe the *form* of the jellyfish? Does the moon always look round? Does the *full* moon always look round? Fill the gaps in these sentences: 1. His face was as —— as a berry. 2 The duck is as —— as a lily. 3. The crow is as —— as night

He had glittering scales and fins and a tail as other fishes have, but he had more than these.

Who is meant by *he*? Has a jellyfish scales, fins and a tail? Of what colour are the scales of a fish? Which word describes

the *scales*? Of what use are the fins? Think of another word for *glittering*. What is meant by *these*? Think of a fish that has scales, fins and a tail

He had little feet as well, so that he could walk upon the land as well as swim in the sea.

Have you ever seen a fish with feet? Which word describes the *feet*? Think of another word for *little*. Do you know a creature that can walk upon the land as well as swim in the sea? Make sentences containing these words—1 walk in; 2. walk under; 3. walk round.

He was merry and he was gay, he was beloved and trusted of the Dragon King

Which word is used to mean the jellyfish? Which words tell you more about the jellyfish? How do you know that you are *merry and gay*? (A comma marks the pause when you are reading aloud) Why is there a comma after *gay*? Make a sentence to tell what the Dragon King thought about the jellyfish. Why do the words *Dragon King* begin with capital letters?

In spite of all this, his grandmother always said he would come to a bad end, because he would not mind his books at school.

Why does the word *In* begin with a capital I? What is meant by *all this*? Was she the Dragon King's grandmother? What does *mind his books* mean? What is a boy called who minds his books? Make a sentence telling in her own words what his grandmother said about the jellyfish to one of her friends, begin your sentence: *His grandmother said, "——."*

THEOPHANIA

PETER-WISE was a clever young peasant who lived in a little village that looked like a dimple in the hillside He owned fifty mooing cows, one hundred baaing sheep, forty grunting pigs, two hundred clacking fowls—and a bellowing bull And he prophesied that in ten years' time he would have doubled these numbers.

But with all this wealth, Peter-Wise lacked the most important creature of all—a wife. Without a wife, what is the use of fifty cows, one hundred sheep, forty pigs, two hundred fowls—and a bull?

Now, Peter-Wise declared that he would not marry a maiden who was less than seventeen or more than twenty-two years old, and in the village there were only six girls between these ages who were not already betrothed or wed. Of these six, therefore—all of whom, being brought up on cream and honey and wheaten bread and saffron cake and wild strawberries, were bonny and plump and fair to see—Peter-Wise decided to choose the cleverest, who, nevertheless, must be just the least bit less clever than he was. So, to discover which was the cleverest, for, busy man that he was with his cows and his sheep and his pigs and his fowls—and his bull, he had not the time to woo each separately, he resolved to set them three tasks one to try their fingers, one to try their brains; one to try their imaginations, and to marry her who succeeded best in the three

So Peter-Wise summoned Mary and Sally and Polly and Minnie and Lucy, and Theophania, called Tiffany for short—these were the names of the girls—and said to them:

"Children, I will marry whichever of you can perform to the best advantage these three tasks: first, to darn a hole in the heel of a sock, secondly, to open, without touching the keyhole, the big barn door which is always locked, thirdly, to catch the moon and put it into a washtub"

Mary and Sally and Polly and Minnie and Lucy said: "Oh, the sock is easy enough, but the door and the moon——"

Theophania, called Tiffany for short, said "The door and the moon should be easy enough, but the sock——"

The three trials were to take place in the morning, afternoon and evening respectively. So in the morning the six maidens assembled in Peter-Wise's parlour—Mary and Sally and Polly and Minnie and Lucy in their best flowered prints—Tiffany in a green smock. Tiffany had brown eyes, but the eyes of the others were five different shades of blue, speedwell, cornflower, lupin, forget-me-not, and chicory.

Peter-Wise gave them each a sock, out of which he had cut the heel, and left them for an hour to darn the hole. When he came back the six socks were lying on the table in a heap, finished. He examined them carefully. Then he said

"Five of these socks are so perfectly darned that not one exceeds another in excellence The sixth, however, is very badly done—a mere cobble. Come forward in turn, and let her who darned *this* sock claim it"

Mary tripped forward, looked at the sock, turned up her nose a little and shook her pretty head "Not mine," said she. Then came Sally and Polly and Minnie and Lucy, also turning up their noses a little and shaking their pretty heads and saying. "Not mine," "Not mine," "Not mine," "Not mine" Lastly, with a twinkle in her eye, came Theophania, called Tiffany for short.

"Mine," she said. "I never, never shall be able to darn."

"The first task is over," announced Peter-Wise. "This afternoon meet me outside the big barn door, which is always locked, at three o'clock."

And away trotted Mary and Sally and Polly and Minnie and Lucy and Tiffany.

At three o'clock they met outside the big barn door, wearing pink and yellow and blue and white and green sunbonnets, and fluttering together like butterflies, except Tiffany, who did not wear a bonnet at all, and she stood by herself, thinking.

Peter-Wise said: "This door, as you know, is always kept locked. Here is the key. Now, let me see which of you can open it without touching the keyhole, for I assure you it can quite easily be done."

"How can we open a locked door without a key?" said Mary and Sally and Polly

and Minnie and Lucy in dismay, and each thought—"It is useless trying the handle—besides, I should look so foolish, and the others would jeer."

But Tiffany—who always thought her own thoughts, not other people's—thought something quite different.

"We give it up," sorrowfully said Mary and Sally and Polly and Minnie and Lucy.

"And you?" asked Peter-Wise of Tiffany.

Tiffany thought: "Because the door has always been locked before, that doesn't prove it is locked to-day. Anyhow, here goes!" And she marched up to the big barn door, turned the handle, and—opened it wide!

"Oh!" cried Mary and Sally and Polly and Minnie and Lucy. "But it is always locked!"

"It wasn't to-day," said Theophania, called Tiffany for short; and she could not help laughing, kindly, at the five expressions of surprise on the five fair faces.

"The second task is over," said Peter-Wise. "Now go and borrow your mothers' washtubs, wait till the moon rises, catch it, and put it in the tub. Then come and fetch me."

"But," said Tiffany, "there is only one moon."

"Exactly," he replied, "therefore only one of you can succeed."

Mary and Sally and Polly and Minnie and Lucy whispered together.

"He is making sport of us," they agreed. "Not even Tiffany can catch the moon. We must give it up." And each of them said in her heart: "After all, so-and-so would make a much better husband."

So they gave it up.

But in the evening Tiffany came to Peter-Wise and said.

"I have caught the moon and put it into mother's washtub. Come and see."

"Caught the moon!" exclaimed Peter. "But there it is up in the sky!"

"Not at all," replied she. "That is not the moon."

The night was still and warm. Peter-Wise followed Tiffany to a water meadow, in the middle of which was her mother's washtub.

"There!" she cried, pointing. "Go and see if the moon isn't in that tub."

So he went up to it, looked over the edge, and there, sure enough, was the round silver moon shining up at him.

"Well, but there are not two moons," he said, looking at the other moon in the sky.

"How foolish you are!" said Tiffany. "That moon in the sky is just the reflection of the real moon in this tub."

Peter-Wise was determined to make sure so he took a penny out of his pocket and dropped it into the tub. It fell through the moon with a splash.

"Oh-ho!" he exclaimed. "Whoever heard of a penny falling through the moon? This moon is made of water."

"Nobody ever tried to throw a penny through before," said Tiffany.

Then Peter-Wise kicked the tub, and the moon began to wobble. A piece of it splashed over the edge on to his boots.

"Whoever heard of the moon being spilt?" he asked.

"Nobody ever tried to spill it before," said Tiffany.

Peter-Wise stroked his chin.

"I have it!" he cried, and grasping the tub, heaved it sideways and upset the mock moon on to the grass, where with little watery sighs it slowly disappeared.

"So much for your moon," said he. "And behold its reflection is still in the sky!" But Tiffany only laughed and laughed and laughed.

"Yes," said Peter to himself, "she is certainly the cleverest girl in the village, but just the least bit less clever than I am. I will marry her." And aloud he said:

"Theophania, you shall, in spite of the sock and the moon that was not a moon, be my wife."

"Peter-Wise," she answered, "you shall not win me so easily. There is a task that

you shall perform for *me* before I will marry you"

"Well, that is only fair, after all," said he, rather taken aback

"It is quite out of the question for me to marry you before I can darn a sock," she continued, "but in six years I shall have perfected myself in that difficult art. Will you wait for me six years?"

This she said to try his love.

"I will wait," said he, who really loved her, and knew something about women.

Now, at the end of three months Peter-Wise was still waiting for Theophania, and she realised that he would keep his word for the rest of the six years But meanwhile she had learnt to darn as beautifully as Mary and Sally and Polly and Minnie and Lucy, who by this time were betrothed respectively to John and James and William and Tom and Adam. So she came to him one day with an example of her darning, and said:

"Peter, it has not taken me so long to learn to darn as I thought it would How would it be if we were married *before* the six years are up?"

"We will get married whenever you please, dear heart," he said, not surprised.

"Well, then," she replied, "—to-morrow"

And they were married at eleven o'clock the next morning

FROM THE STORY

1. Do you know?—What is a dimple? Of what time does a man speak when he prophesies? What is double the number of forty? What is the colour of saffron cake? When you do arithmetic are you using your brains or your imagination? When you make up a fairy story are you using your brains or your imagination? What is another name for the parlour of a house? How does your sock look when you have cobbled the hole in it? How does your sock look when you have darned the hole in it? In what other substance besides water can you see your reflection?

2. Put together.—

Bellowing	cows.
Round, silver	sheep.
Pink and yellow and blue and white and green	pigs
Bonny and plump and fair	fowls
Mooing	bull.
Grunting	girls.
Baaing	man
Clacking	sunbonnets.
Busy	moon.

3. Put in the name-words.—But Peter-Wise lacked the most important creature of all, a —— He resolved to set them three tasks: one to try their fingers, one to try their brains; one to try their ——. When he came back the six socks were lying on the table in a ——, finished Mary tripped forward, looked at the sock, turned up her —— a little, and shook her pretty head "That moon in the sky is just the —— of the real moon in this tub"

4. Marked passage.—Read the passage on page 163, and then think about it with the help of these questions —

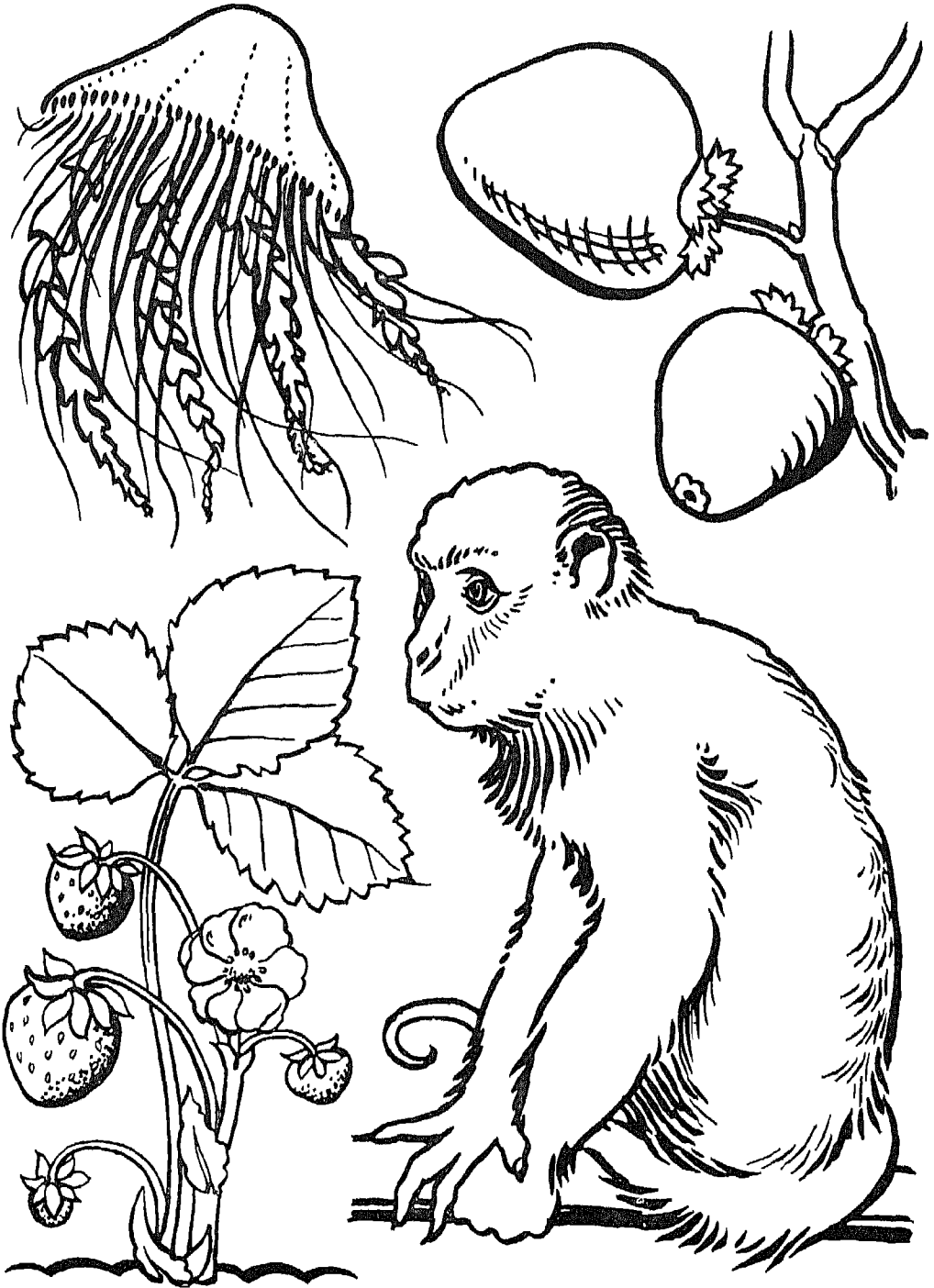
Then Peter-Wise kicked the tub, and the moon began to wobble.

Why do the words *Peter-Wise* begin with capital letters? Why is there a comma after *tub*? What made the moon *wobble*? What was really wobbling? What toy have you seen wobble?

A piece of it splashed over the edge on to his boots.

What is meant by *it*? Why did it *splash*? Do you think that when the water stopped wobbling the piece of moon that had splashed over was still missing? What *edge* is meant? Who is meant by *his*? Which word shows to whom the *boots* belonged?

"Whoever heard of the moon being spilt?" he asked

Why are the lifted commas " " used? Why is the mark ? used? Who is meant by *he*?

JELLYFISH—SEE PAGE 158
WILD STRAWBERRIES—SEE PAGE 162
PERSIMMONS—SEE PAGE 159
MONKEY—SEE PAGE 159

"Nobody ever tried to spill it before," said Tiffany.

Where are the lifted commas " used? Where are the lifted commas " used? Why was this a good answer to his question?

Peter-Wise stroked his chin.

Why do you think he did this? What other things do people sometimes do for the same reason?

"I have it!" he cried, and grasping the tub, heaved it sideways and upset the mock moon on to the grass, where with little watery sighs it slowly disappeared

Did Peter-Wise mean, *"I have the moon,"* or *"I have an idea,"* or *"I have the tub"*? Why is the mark ! used? Think of another word to use instead of *grasping*. What did he really upset when he heaved the tub sideways? Why is the moon called *mock*? Which place is meant by *where*? Is it prettier to say *with little watery sighs*, or *with the sound made by water sinking into the ground*? What word tells you *how* it disappeared? What word means the opposite of *slowly*? Do you think that the ground of the meadow was damp or dry?

5. Make sentences telling.—(*a*) what Peter-Wise wished his wife to be like; (*b*) of the first task that Peter-Wise set the girls, (*c*) of the second task he set the girls; (*d*) of the third task he set the girls; (*e*) why Tiffany told Peter-Wise that he must wait for her six years.

6. Draw.—A pig. A strawberry. A key and a keyhole A washtub.

SEPTIMUS SEPTIMUSSON

PART I

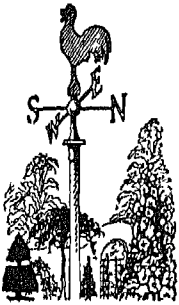
THE wind was screaming over the marsh. It shook the shutters and rattled the windows, and the little boy lay awake in the bare attic. His mother came softly up the ladder stairs shading the flame of the tallow candle with her hand.

"I'm not asleep, mother," said he. And she heard the tears in his voice.

"Why, silly lad," she said, sitting down on the straw bed beside him and putting

the candle on the floor, "what are you crying for?"

"It's the wind keeps calling me, mother," he said. "It won't let me alone It never has since I put up the little weathercock for it to play with. It keeps saying, 'Wake up, Septimus Septimusson, wake up, you're the seventh son of a seventh son You can see the fairies and hear the beasts speak, and you must go out and seek your fortune' And I'm afraid, and I don't want to go."

"I should think not indeed," said his mother. "The wind doesn't talk, Sep, not really You just go to sleep like a good boy, and I'll get father to bring you a gingerbread pig from the fair to-morrow."

WEATHERCOCK

But Sep lay awake a long time listening to what the wind really did keep on saying, and feeling ashamed to think how frightened he was of going out all alone to seek his fortune—a thing all the boys in books were only too happy to do.

Next evening father brought home the loveliest gingerbread pig with currant eyes Sep ate it, and it made him less anxious than ever to go out into the world where, perhaps, no one would give him gingerbread pigs ever any more.

Before he went to bed he ran down to the shore where a great new harbour was being made. The workmen had been blasting the big rocks, and on one of the rocks a lot of mussels were sticking He stood looking at them, and then suddenly he heard a lot of little voices crying, "Oh, Sep, we're so frightened, we're choking."

The voices were thin and sharp as the edges of mussel shells They were indeed the voices of the mussels themselves.

"Oh dear," said Sep, "I'm so sorry, but I can't move the rock back into the sea, you know. Can I now?"

"No," said the mussels, "but if you speak to the wind—you know his language and he's very fond of you since you made that toy for him—he'll blow the sea up till the waves wash us back into deep water"

"But I'm afraid of the wind," said Sep, "it says things that frighten me."

"Oh, very well," said the mussels, "we don't want you to be afraid. We can die all right if necessary"

Then Sep shivered and trembled

"Go away," said the thin sharp voices. "We'll die—but we'd rather die in our own brave company"

"I know I'm a coward," said Sep. "Oh, wait a minute."

"Death won't wait," said the little voices.

"I can't speak to the wind, I won't," said Sep, and almost at the same moment he heard himself call out, "Oh, wind, please come and blow up the waves to save the poor mussels."

The wind answered with a boisterous shout—

"All right, my boy," it shrieked, "I'm coming." And come it did And when it had attended to the mussels it came and whispered to Sep in his attic. And to his great surprise, instead of covering his head with the bedclothes, as usual, and trying not to listen, he found himself sitting up in bed and talking to the wind, man to man.

"Why," he said, "I'm not afraid of you any more"

"Of course not, we're friends now," said the wind. "That's because we joined together to do a kindness to some one. There's nothing like that for making people friends"

"Oh," said Sep

"Yes," said the wind, "and now, old chap, when will you go out and seek your fortune? Remember how poor your father is, and the fortune, if you find it, won't be just for you, but for your father and mother, and the others."

"Oh," said Sep, "I didn't think of that."

"Yes," said the wind, "really, my dear fellow, I do hate to bother you, but it's better to fix a time. Now when shall we start?"

"We?" said Sep. "Are you going with me?"

"I'll see you a bit of the way," said the wind. "What do you say now? Shall we start to-night? There's no time like the present."

"I do hate going," said Sep

"Of course you do!" said the wind, cordially. "Come along Get into your things, and we'll make a beginning."

So Sep dressed, and he wrote on his slate in very big letters, "Gone to seek our fortune," and he put it on the table so that his mother should see it when she came down in the morning And he went out of the cottage and the wind kindly shut the door after him.

The wind gently pushed him down to the shore, and there he got into his father's boat, which was called the Septimus and Susie, after his father and mother, and the wind carried him across to another country and there he landed.

"Now," said the wind, clapping him on the back, "off you go, and good luck to you!"

And it turned round and took the boat home again

When Sep's mother found the writing on the slate, and his father found the boat gone they feared that Sep was drowned, but when the wind brought the boat back wrong way up, they were quite sure, and they both cried for many a long day.

The wind tried to tell them that Sep was all right, but they couldn't understand wind-talk, and they only said, "Drat the wind," and fastened the shutters up tight, and put wedges in the windows

Sep walked along the straight white road that led across the new country. He had no more idea how to look for *his* fortune than you would have if you suddenly left off reading this and went out of your front door to seek *yours*.

However, he had made a start, and that is always something. When he had gone exactly seven miles on that straight foreign road, between strange trees, and bordered with flowers he did not know the names of, he heard a groaning in the wood, and some one sighing and saying, "Oh, how hard it is, to have to die and never see my wife and the little cubs again"

The voice was rough as a lion's mane, and strong as a lion's claws, and Sep was very frightened. But he said, "I'm not afraid," and then oddly enough he found he had spoken the truth—he wasn't afraid.

He broke through the bushes and found that the person who had spoken was indeed a lion. A javelin had pierced its shoulder and fastened it to a great tree.

"All right," cried Sep, "hold still a minute, sir."

He got out his knife and cut and cut at the shaft of the javelin till he was able to break it off Then the lion drew back and the broken shaft passed through the wound, and the broken javelin was left sticking in the tree

SQUIRREL

"I'm really extremely obliged, my dear fellow," said the lion warmly "Pray command me, if there's any little thing I can do for you at any time."

"Don't mention it," said Sep with proper politeness "Delighted to have been of use to you, I'm sure"

So they parted. As Sep scrambled through the bushes back to the road he kicked against an axe that lay on the ground

"Hullo," said he, "some poor woodman's dropped this, and not been able to find it I'll take it along—perhaps I may meet him"

He was getting very tired and very hungry, and presently he sat down to rest under a chestnut tree, and he heard two little voices talking in the branches, voices soft as a squirrel's fur, and bright as a squirrel's eyes They were, indeed, the voices of two squirrels.

"Hush," said one, "there's some one below."

"Oh," said the other, "it's a horrid boy. Let's scurry away"

"I'm not a horrid boy," said Sep. "I'm the seventh son of a seventh son."

"Oh," said Mrs Squirrel, "of course that makes all the difference. Have some nuts?"

"Rather," said Sep "At least I mean, yes, if you please"

So the squirrels brought nuts down to him, and when he had eaten as many as he wanted they filled his pockets, and then in return he chopped all the lower boughs off the chestnut tree, so that boys who were *not* seventh sons could not climb up and interfere with the squirrels' housekeeping arrangements

Then they parted, the best of friends, and Sep went on.

"I haven't found my fortune yet," said he, "but I've made a friend or two"

And just as he was saying that, he turned a corner of the road and met an old gentleman in a fur-lined coat riding a fine, big, grey horse.

"Hullo!" said the gentleman. "Who are you, and where are you off to so bright and early?"

"I'm Septimus Septimusson," said Sep, "and I'm going to seek my fortune"

"And you've taken an axe to help you carve your way to glory?"

"No," said Sep, "I found it, and I suppose some one lost it So I'm bringing it along in case I meet him."

"Heavy, isn't it?" said the old gentleman

"Yes," said Sep

"Then I'll carry it for you," said the old gentleman, "for it's one that my head forester lost yesterday. And now come along with me, for you're the boy I've been looking for for seven years—an honest boy and the seventh son of a seventh son."

So Sep went home with the gentleman, who was a great lord in that country, and he lived in that lord's castle and was taught everything that a gentleman ought to know. And in return he told the lord all about the ways of birds and beasts—for as he understood their talk he knew more about them than any one else in that country. And the lord wrote it all down in a book, and half the people said it was wonderfully clever, and the other half said it was nonsense, and how could he know. This was fame, and the lord was very pleased. But though the old lord was so famous he would not leave his castle, for he had a hump that an enchanter had fastened on to him, and he couldn't bear to be seen with it

"But you'll get rid of it for me some day, my boy," he used to say "No one but the seventh son of a seventh son and an honest boy can do it. So all the doctors say."

So Sep grew up. And when he was twenty-one—straight as a lance and handsome as a picture—the old lord said to him:

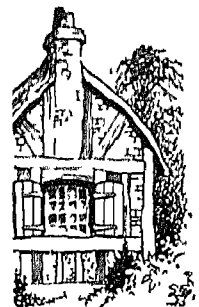
"My boy, you've been like a son to me, but now it's time you got married and had sons of your own. Is there any girl you'd like to marry?"

"No," said Sep, "I never did care much for girls."

The old lord laughed.

"Then you must set out again and seek your fortune once more," he said, "because no man has really found his fortune till he's found the lady who is his heart's lady. Choose the best horse in the stable, and off you go, lad, and my blessing go with you."

FROM THE STORY

1. Do you know?—What plants grow on a marsh? Where is the attic of a house? Where are the shutters of a house? What is a straw bed? What does a weathercock show? What things do you find at a fair? What is the use of a harbour? Why do people put wedges in their windows? What work does a forester do? What is the meaning of the word *Sept*? Can you

WINDOW-SHUTTERS

guess from the story what the names *Septimus Septimusson* are supposed to mean?

2. Put together.—

Gingerbread	coat
Bare	horse.
Straight	attic
Fur-lined	pig.
Grey	road.

3. Put right.—The workmen | brought nuts down to Sep Sep | had a hump. The wind | had been blasting the big rocks Sep's mother | found the boat gone Sep's father | found the writing on the table The squirrels | carried Sep across to another country. The lord | wrote on his slate in very big letters, "Gone to seek our fortune."

4. You are told.—	**Then put in the describing words—**
(*a*) Sep's house had ladder stairs. Sep slept in a bare attic on a straw bed They used candles.	Sep's father was a —— man.
(*b*) When the wind had attended to the mussels it came and whispered to Sep in his attic The wind tried to tell his father and mother that he was all right	The wind had a —— nature.
(*c*) Sep set free the lion Sep stopped other boys from climbing up to worry the squirrels	Sep was a —— boy.
(*d*) Sep said that the axe was not his own, but that he was trying to find the owner of it.	Sep was an —— boy.

5. Tell me.—What did the wind say to Sep? What did the mussels want Sep to do? How did the wind and Sep become friends? How did Sep get over to a foreign country? What made Sep's father and mother think that he was drowned? What did Sep do for the lion? How did Sep make friends with the squirrels? Why did the lord take Sep home to live with him?

6. Marked passage.—Read the passage on page 169, and then think about it with the help of these questions —

So Sep went home with the gentleman, who was a great lord in that country, and he lived in that lord's castle and was taught everything that a gentleman ought to know.

To whose home did they go? By what other name is *the gentleman* called in this sentence? Think of another word for *great* By what other name is the *home* called? (To show that the *castle* belongs to the *lord*, we may say *the castle of the lord*, or: *the lord's castle.*) Write in the form using the one lifted comma and the *s*: 1. the home of the gentleman; 2. the duties of a lord.

And in return he told the lord all about the ways of birds and beasts—for as he understood their talk he knew more about them than anyone else in that country.

For what things did Sep tell the lord these things *in return*? Who is meant by *he*? Put the proper names for the words in italics. for as *he* understood *their* talk *he* knew more about *them* than anyone else in the country. Would it be correct to write *he understood there talk*?

And the lord wrote it all down in a book, and half the people said it was wonderfully clever, and the other half said it was nonsense, and how could he know

What is meant by *it*? Who could *the people* be? *The other half*—of what? How *did* he know? What is *nonsense*? Does *nonsense* mean the same as *no sense*?

This was fame, and the lord was very pleased.

If no one had troubled to read the lord's book, should we say, *This was fame*? Are people usually pleased to be famous? Think of another word for *pleased*

But though the old lord was so famous he would not leave his castle, for he had a hump that an enchanter had fastened on to him, and he couldn't bear to be seen with it

What word means the opposite of *old*? What is another name for *an enchanter*? Who is meant by *him*? Say *couldn't* in full. Why do you think the old lord couldn't bear people to see his hump?

7. Make sentences telling.—(*a*) why Sep could see the fairies and hear the beasts speak, (*b*) how Sep told his mother that he had gone away to seek his fortune, (*c*) what Sep heard in the wood when he had gone seven miles on the straight foreign road; (*d*) why the old lord sent Sep away on his travels again.

8. Draw.—A candle A boat. A slate with the words on it: GONE TO SEEK OUR FORTUNE A wedge. An axe. A leaf of a chestnut tree (For the drawing of a gingerbread pig, see page 177)

SEPTIMUS SEPTIMUSSON

PART II

SO Sep chose a red horse and set out, and he rode straight to the great city, that shone golden across the plain, and when he got there he found every one crying.

"Why, whatever is the matter?" said Sep, reining in the red horse in front of a smithy, where the apprentices were crying on to the fires, and the smith was dropping tears on the anvil.

"Why, the Princess is dying," said the blacksmith, blowing his nose. "A nasty, wicked magician—he had a spite against the King, and he got at the Princess when she was playing ball in the garden, and now she's blind and deaf and dumb. And she won't eat."

"And she'll die," said the first apprentice.

"And she *is* such a dear," said the other apprentice.

Sep sat still on the red horse thinking.

"Has anything been done?" he asked

"Oh yes," said the blacksmith "All the doctors have seen her, but they can't do anything. And the King has advertised in the usual way, that any one who can cure her may marry her But it's no good. Kings' sons aren't what they used to be. A silly lot they are nowadays, all taken up with football and cricket and golf."

"Humph," said Sep, "thank you. Which is the way to the palace?"

The blacksmith pointed, and then burst into tears again. Sep rode on

When he got to the palace he asked to see the King. Every one there was crying too, from the footman who opened the door, to the King who was sitting upon his golden throne looking at his fine collection of butterflies through floods of tears.

"Oh dear me, yes, young man," said the King, "you may *see* her and welcome, but it's no good"

"We can but try," said Sep. So he was taken to the room where the Princess sat huddled up on her silver throne among the white velvet cushions with her crown all on one side, crying out of her poor blind eyes, so that the tears ran down over her green gown with the red roses on it.

And directly he saw her he knew that she was the only girl, Princess as she was, with a crown and a throne, who could ever be his heart's lady. He went up to her and kneeled at her side and took her hand and kissed it. The Princess started She could not see or hear him, but at the touch of his hand and his lips she knew that he was her heart's lord, and she threw her arms round his neck, and cried more than ever

He held her in his arms and stroked her hair till she stopped crying, and then he called for bread and milk. This was brought in a silver basin, and he fed her with it as you feed a little child.

The news ran through the city, "The Princess has eaten," and all the bells were set ringing. Sep said good-night to his Princess and went to bed in the best bedroom of the palace. Early in the grey morning he got up and leaned out of the open window and called to his old friend the wind

The wind came bustling in and clapped him on the back, crying, "Well, my boy, and what can I do for you? Eh?"

Sep told him all about the Princess

"Well," said the wind, "you've not done so badly. At any rate you've got her love And you couldn't have got that with anybody's help but your own Now, of course, the thing to do is to find the wicked Magician"

"Of course," said Sep

"Well—I travel a good deal—I'll keep my eyes open, and let you know if I hear anything."

Sep spent the day holding the Princess's hand, and feeding her at mealtimes; and that night the wind rattled his window and said, "Let me in"

It came in very noisily, and said, "Well, I've found your Magician, he's in the forest pretending to be a mole."

"How can I find him?" said Sep

"Haven't you any friends in the forest?" asked the wind.

MOLE

Then Sep remembered his friends the squirrels, and he mounted his horse and rode away to the chestnut tree where they lived. They were charmed to see him grown so tall and strong and handsome, and when he had told them his story they said at once—

"Oh, yes! delighted to be of any service to you." And they called to all their little brothers and cousins, and uncles and nephews to search the forest for a mole that wasn't really a mole, and quite soon they found him, and hustled and shoved him along till he was face to face with Sep, in a green glade The glade was green, but all the bushes and trees around were red-brown with squirrel fur, and shining bright with squirrel eyes

Then Sep said, "Give the Princess back her eyes and her hearing and her voice"

But the mole would not

"Give the Princess back her eyes and her hearing and her voice," said Sep again But the mole only gnashed his wicked teeth and snarled.

And then in a minute the squirrels fell on the mole and killed it, and Sep thanked them and rode back to the palace, for, of course, he knew that when a magician is killed, all his magic unworks itself instantly.

But when he got to his Princess she was still as deaf as a post and as dumb as a stone, and she was still crying bitterly with her poor blind eyes, till the tears ran down her grass-green gown with the red roses on it

"Cheer up, my sweetheart," he said, though he knew she couldn't hear him, and as he spoke the wind came in at the open window, and spoke very softly, because it was in the presence of the Princess.

WILD BOAR

"All right," it whispered, "the old villain gave us the slip that journey. Got out of the mole skin in the very nick of time He's a wild boar now"

"Come," said Sep, fingering his sword hilt, "I'll kill that myself without asking it any questions."

So he went and fought it. But it was a most uncommon boar, as big as a horse, with tusks half a yard long, and although Sep wounded it, it jerked the sword out of his hand with its tusk, and was just going to trample him out of life with its hard, heavy pig's feet, when a great roar sounded through the forest.

"Ah! would ye?" said the lion, and fastened teeth and claws in the great boar's back The boar turned with a scream of rage, but the lion had got a good grip, and it did not loosen teeth or claws till the boar lay quiet.

"Is he dead?" asked Sep when he came to himself

"Oh, yes, he's *dead* right enough," said the lion; but the wind came up puffing and blowing, and said

"It's no good, he's got away again, and now he's a fish I was just a minute too late to see *what* fish An old oyster told me about it, only he hadn't the wit to notice what particular fish the scoundrel changed into."

So when Sep went back to the palace, and he said to the King:

"Let me marry the dear Princess, and we'll go out and seek our fortune. I've got to kill that Magician, and I'll do it too, or my name's not Septimus Septimusson. But it may take years and years, and I can't be away from the Princess all that time, because she won't eat unless I feed her. You see the difficulty, Sire?"

The King saw it. And that very day Sep was married to the Princess in her green gown with the red roses on it, and they set out together.

The wind went with them, and the wind, or something else, seemed to say to Sep, "Go home, take your wife home to your mother."

So he did He crossed the land and he crossed the sea, and he went up the red-brick path to his father's cottage, and he peeped in at the door and said.

"Father, mother, here's my wife."

They were so pleased to see him—for they had thought him dead—that they didn't notice the Princess at first When they did notice her they wondered at her beautiful face and her beautiful gown; but it wasn't till they had all settled down to supper—boiled rabbit it was—that they noticed Sep feeding his wife as one feeds a baby, and they saw that she was blind

And then all the story had to be told

"Well, well," said the fisherman, "you and your wife bide here with us I daresay I'll catch that old sinner in my nets one of these fine days" But he never did. And Sep and his wife lived with the old people. And they were happy after a fashion—but of

an evening Sep used to wander and wonder, and wonder and wander by the seashore, wondering as he wandered whether he wouldn't ever have the luck to catch that fish.

And one evening as he wandered wondering he heard a little, sharp, thin voice say·

"Sep, I've got it"

"What?" asked Sep, forgetting his manners

"I've got it," said a big mussel on a rock close by him, "the magic stone that the Magician does his enchantments with. He dropped it out of his mouth and I shut my shells on it—and now he's sweeping up and down the sea like a mad fish, looking for it—for he knows he can never change into anything else unless he gets it back Here, take the nasty thing, it's making me feel quite ill"

It opened its shells wide, and Sep saw a pearl. He reached out his hand and took it.

"That's better," said the mussel, washing its shells out with salt water

"Can *I* do magic with it?" Sep eagerly asked.

"No," said the mussel sadly, "it's of no use to any one but the owner. Now, if I were you, I'd get into a boat, and if your friend the wind will help us, I believe we really can do the trick"

"I'm at your service, of course," said the wind, getting up instantly.

The mussel whispered to the wind, who rushed off at once; and Sep launched his boat.

"Now," said the mussel, "you get into the very middle of the sea—or as near as you can guess it The wind will warn all the other fishes" As he spoke he disappeared in the dark waters.

Sep got the boat into the middle of the sea—as near as he could guess it—and waited.

After a long time he saw something swirling about in a sort of whirlpool about a hundred yards from his boat, but when he tried to move the boat towards it her bows ran on to something hard

"Keep still, keep still, keep still," cried thousands and thousands of sharp, thin, little voices. "You'll kill us if you move"

Then he looked over the boat side, and saw that the hard something was nothing but thousands and thousands of mussels all jammed close together, and through the clear water more and more were coming and piling themselves together. Almost at once his boat was slowly lifted—the top of the mussel heap showed through the water, and there he was, high and dry on a mussel reef.

And in all that part of the sea the water was disappearing, and as far as the eye could reach stretched a great plain of purple and grey—the shells of countless mussels.

Only at one spot there was still a splashing

Then a mussel opened its shell and spoke.

"We've got him," it said. "We've piled ourselves up till we've filled this part of the sea. The wind warned all the good fishes—and we've got the old traitor in a little pool over there. Get out and walk over our backs—we'll all lie sideways so as not to hurt you. You must catch the fish—but whatever you do don't kill it till we give the word."

Sep promised, and he got out and walked over the mussels to the pool, and when he saw the wicked soul of the Magician looking out through the round eyes of a big finny fish he remembered all that his Princess had suffered, and he longed to draw his sword and kill the wicked thing then and there.

But he remembered his promise. He threw a net about it, and dragged it back to the boat.

The mussels dispersed and let the boat down again into the water—and he rowed home, towing the evil fish in the net by a line

He beached the boat, and looked along the shore. The shore looked a very odd colour. And well it might, for every bit of the sand was covered with purple-grey mussels They had all come up out of the sea—leaving just one little bit of real yellow sand for him to beach the boat on.

"Now," said millions of sharp thin little voices, "kill him, kill him!"

Sep drew his sword and waded into the shallow surf and killed the evil fish with one strong stroke.

Then such a shout went up all along the shore as that shore had never heard; and all along the shore where the mussels had been, stood men in armour and men in smock frocks and men in leather aprons and huntsmen's coats and women and children—a whole nation of people. Close by the boat stood a King and Queen with crowns upon their heads

"Thank you, Sep," said the King, "you've saved us all I am the King Mussel, doomed to be a mussel so long as that wretch lived. You have set us all free And look!"

Down the path from the shore came running his own Princess, who hung round his neck crying his name and looking at him with the most beautiful eyes in the world.

"Come," said the Mussel King, "we have no son. You shall be our son and reign after us"

"Thank you," said Sep, "but *this* is my father," and he presented the old fisherman to His Majesty.

"Then let him come with us," said the King royally, "he can help me reign, or fish in the palace lake, whichever he prefers"

"Thankee," said Sep's father, "I'll come and fish"

"Your mother too," said the Mussel Queen, kissing Sep's mother.

"Ah," said Sep's mother, "you're a lady, every inch I'll go to the world's end with you."

So they all went back by way of the foreign country where Sep had found his Princess, and they called on the old lord. He had lost his hump, and they easily persuaded him to come with them.

"You can help me reign if you like, or we have a nice book or two in the palace library," said the Mussel King.

"Thank you," said the old lord, "I'll come and be your librarian if I may Reigning isn't at all in my line."

Then they went on to Sep's father-in-law, and when he saw how happy they all were together he said:

"Bless my beard, but I've half a mind to come with you."

"Come along," said the Mussel King, "you shall help me reign if you like . . . or . . ."

"No, thank you," said the other King, very quickly, "I've had enough of reigning My kingdom can buy a President and be a republic if it likes. I'm going to catch butterflies."

And so he does, most happily, up to this very minute.

And Sep and his dear Princess are as happy as they deserve to be. Some people say we are all as happy as we deserve to be—but I am not sure.

FROM THE STORY

1. Do you know? What is a smithy? Why is there a fire in a smithy? What is an anvil used for? What is an apprentice? Where does a mole live? What do you see which shows where a mole lives? Are there wild boars in England to-day? What is a reef?

SMITHY

2. Pick out all the words which tell you about: throne; cushions, eyes; gown, roses.

The Princess sat huddled up on her silver throne among the white velvet cushions with her crown all on one side, crying out of her poor blind eyes, so that the tears ran down over her green gown with the red roses on it.

3. Put together.—

The footman	fastened teeth and claws in the great boar's back.
The king	washed its shells out with salt water
The lion	looked out through the round eyes of a big finny fish
Sep and his wife	opened the door
The mussel	was looking at his fine collection of butterflies.
The wicked soul of the Magician	lived with the old people.

4. Tell me.—Why was every one in the city crying? Why were all the bells in the city set ringing? What did Sep ask the wind to help him to do? What were the three creatures the Magician turned into? What did Sep do after he had married the Princess? How did Sep find the Magician's pearl? Who helped Sep to catch the Magician in the end?

5. Marked passage.—Read the passage on page 172, and then think about it with the help of these questions —

The news ran through the city, "The Princess has eaten," and all the bells were set ringing

Is it really true to say, *The news ran through the city*? Who do you think would run? What was *the news*? Why should the bells be set ringing at the news? What bells would they be? Do you think the noise of the bells might have worried the Princess? Does *the bells were set ringing* mean the same thing as *the bells were rung*?

Sep said good-night to his Princess and went to bed in the best bedroom of the palace

Make a sentence telling what Sep might have said to the Princess when he said good-night, begin your sentence *Sep said*, "——" Why should he be given the *best* bedroom?

Early in the grey morning he got up and leaned out of the open window and called to his old friend the wind

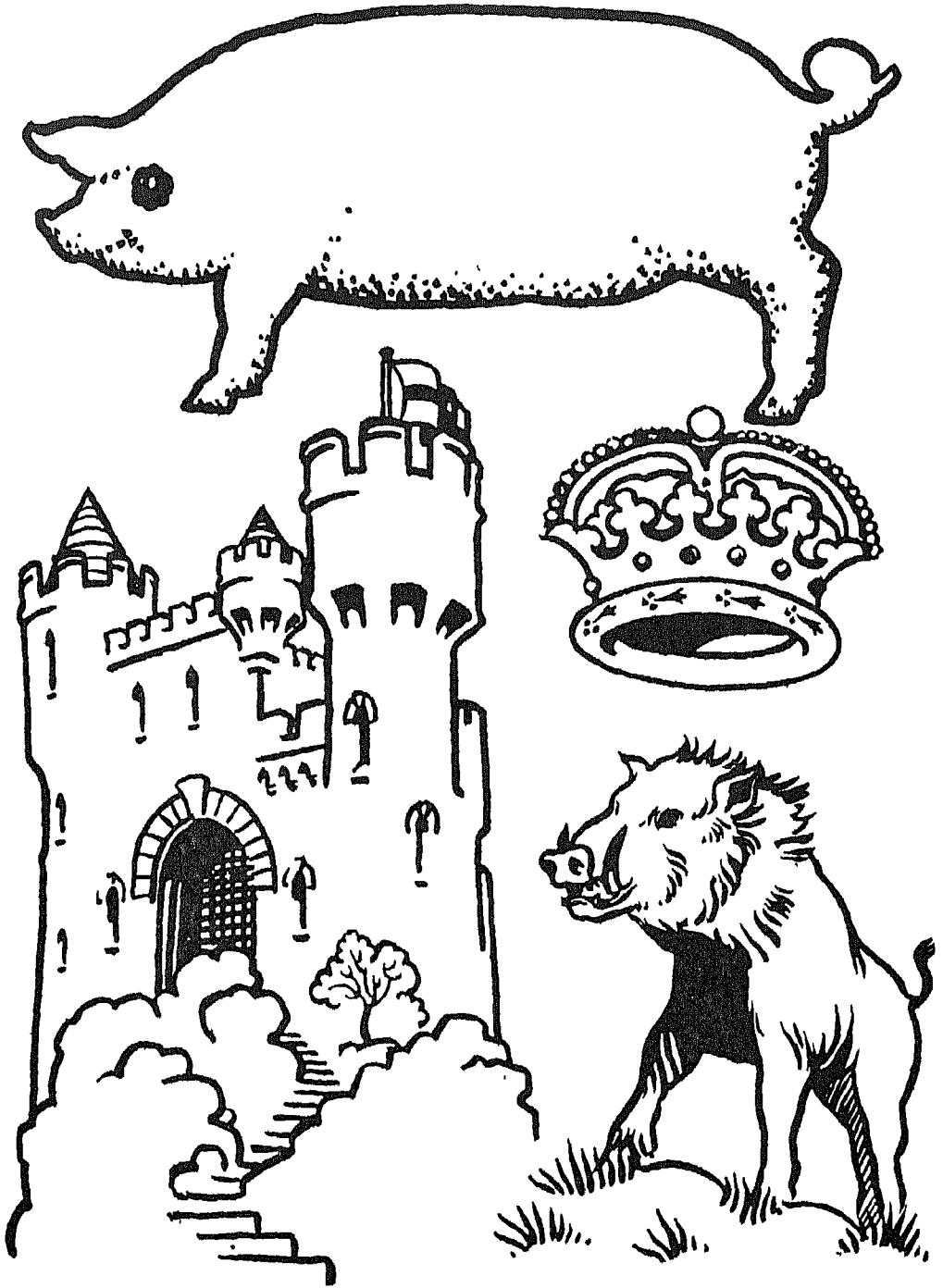
What word means the opposite of *early*? Why is the morning called *grey*? At what time is the morning *grey*? About what time must Sep have got up? Think of one word that means *got up* Which word tells you about the *window*? Which word describes the *friend*? Make a sentence telling what Sep said when he called the wind, begin your sentence *Sep cried out, "——."*

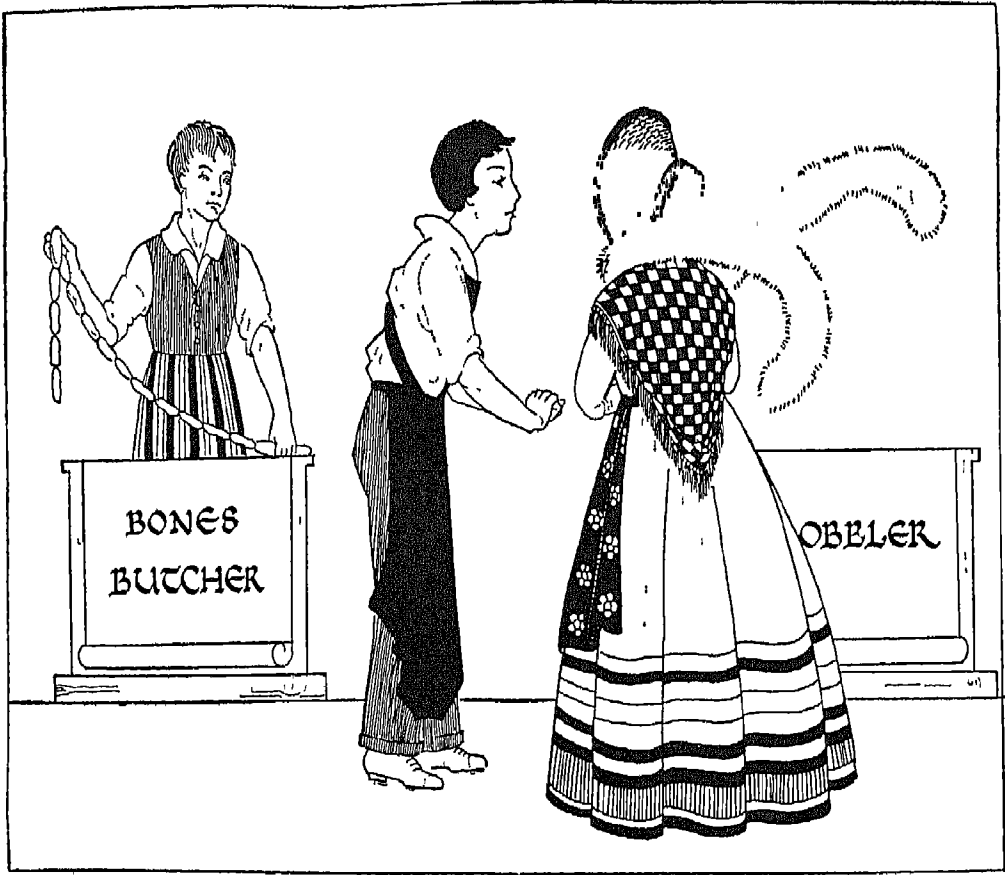
The wind came bustling in and clapped him on the back, crying, "Well, my boy, and what can I do for you? Eh?"

Why is the wind said to *bustle*? Which of these words could you use in speaking of the wind?—*creep, rush, squirm, rustle, slide, hush.* Have you ever felt the wind clap you on the back? Did the wind talk like an old person or like a young person? Why is this mark ? used at the end of the sentence? Why are lifted commas like these " " used in this sentence? Why is *Well* written with a capital *W*? Which two words mean *Sep*?

Sep told him all about the Princess

Who is meant by *him*? What things would Sep tell him?

6. Make sentences telling.—(*a*) what sad thing had happened to the Princess, (*b*) why Sep was given the best bedroom; (*c*) why the King allowed Sep to marry the Princess, (*d*) what happened to the mussels

GINGERBREAD PIG—SEE PAGE 167
CASTLE—SEE PAGE 169
CROWN—SEE PAGE 175
WILD BOAR—SEE PAGE 173

SIX SIMPLE PLAYS FOR THE SECOND YEAR'S COURSE

THE CLEVER COBBLER

This is a one-act play Read it straight through, then choose the actors to read the spoken parts aloud, playing the actions as they are told.

People in the play—THE COBBLER THE BUTCHER THE BAKER THE GREENGROCER. THE CANDLESTICK MAKER MRS. HURRY-BUSTLE

Things wanted in the play—A shoe. A pair of red slippers A large shopping bag A purse full of coins. Paper for wrapping parcels Articles to represent—a string of sausages, a loaf of bread, a basket of strawberries, a china candlestick

Scene—The market-place in Tinytown, with five shops arranged in a half-circle in this order Cobbler, Butcher, Baker, Greengrocer, Candlestick Maker (Each shop may be a desk, with the name of the shopman—for example, BONES THE BUTCHER—written on a sheet of paper pinned to the front of the desk) Each shopman has in his shop paper for wrapping and the article he sells The Cobbler has both the shoe and the red slippers

[*The shopmen are sitting in their shops*]

Candlestick Maker I don't know what has come over the folks of Tinytown No one seems to do any shopping at all.

Butcher It is dreadful. I haven't sold a piece of meat since yesterday morning.

Baker. All my bread has gone stale, and I see no sense in baking any more

Greengrocer. I have had to live on apples and oranges all this week, because I have no money to buy any other food. Something must be done about it, or we shall all starve.

Candlestick Maker. I don't see what we can do We can't *make* people buy our goods. I expect I shall die first, because I am so old. I will invite you all to my funeral.

Cobbler. What a gloomy old fellow you are, Candlestick Maker! Always looking on the dark side of things.

Candlestick Maker. Well, Master Cobbler, since you're so free with your remarks, have you anything to suggest?

Cobbler Of course I have.

All the Shopmen. What is it?

Candlestick Maker. Some stupid notion, I'll be bound.

Cobbler. Oh well, if you don't want to hear . . .

All except the Candlestick Maker. We do! we do!

Butcher. Never mind old Candles, he is always crotchety; tell us your idea.

Cobbler. Supposing I were to send each of you a customer within the next half-hour, wouldn't you say I had a great brain then?

Candlestick Maker. More like a swelled head, I should say.

Baker. Do be quiet, Candles Tell us your idea, Cobbler

Cobbler. Very well. Come over here, and I'll whisper it, because Candles doesn't want to hear.

[*The Shopmen leave their shops and crowd round Cobbler, all except Candlestick Maker, who sits still, muttering to himself*]

Cobbler. Old Mrs Hurrybustle came along this morning. She was in a hurry as usual, and she brought a shoe to be mended. She is coming back at half-past two to fetch it, and when she comes——

[*While Cobbler has been talking, Candlestick Maker has been creeping quietly up to listen. Cobbler looks up and sees him near.*]

Hullo, what do you want?

Candlestick Maker Oh—I was just having a little walk, that's all.

Cobbler. I'll whisper the rest, so that he can't hear.

[*Cobbler whispers to the other Shopmen. Candlestick Maker stands by looking very disappointed*]

Greengrocer. Well, Cobbler, you are a very clever fellow We will certainly do as you suggest.

Cobbler. Here comes the old lady. Go back to your shops, all of you. Butcher, you take the shoe.

[*Cobbler gives the shoe to Butcher All the Shopmen go back to their shops. Mrs. Hurrybustle comes bustling in carrying the shopping bag and the purse. She goes to Cobbler's shop and knocks*]

Mrs. Hurrybustle. Good afternoon, Cobbler Have you done my shoe?

Cobbler. I am very sorry, madam, it is not quite finished, I needed some lard to grease it with, so I sent it along to the butcher's next door

Mrs Hurrybustle. How provoking! Just when I'm in such a hurry too! I'll call in and get it.

[*Butcher passes shoe to Baker. Mrs Hurrybustle goes to Butcher's shop and knocks.*]

Mrs. Hurrybustle. Good afternoon, Butcher The cobbler tells me he sent my shoe on to you to be greased.

Butcher. I'm sorry, Mrs. Hurrybustle, I haven't it with me just now, I sent it on to the baker next door to be warmed so as to melt the grease. But wouldn't you like a string of these fine pork sausages, just fresh in?

[*Butcher holds up sausages*]

Mrs. Hurrybustle They do look very nice Perhaps as I'm here I might as well take them.

[*Butcher wraps up the sausages, Mrs Hurrybustle pays and puts them in her bag.*]

Butcher. Good afternoon, Mrs Hurrybustle.

Mrs. Hurrybustle Good afternoon

[*Baker passes the shoe to Greengrocer. Mrs. Hurrybustle goes to Baker's shop and knocks*]

Mrs Hurrybustle. Good afternoon. I've called for my shoe The cobbler sent it to the butcher, and the butcher says he has sent it on to you.

Baker. I am very sorry, madam, but it got a little stained in the oven, so I sent it to the fruit shop to have the stain taken out with lemon juice But won't you buy something while you are here? What about some bread for tea?

Mrs. Hurrybustle Well, I declare! I had forgotten to get any! What a good thing you reminded me!

[*Baker wraps up the loaf; Mrs Hurrybustle pays and puts it in her bag*]

Mrs Hurrybustle. Good afternoon, Baker.

Baker. Thank you, madam. Good afternoon, madam.

[*Mrs Hurrybustle goes to the fruit shop and knocks*]

Mrs. Hurrybustle. Good afternoon, Greengrocer. I have called for my shoe. The cobbler sent it on to the butcher, the butcher sent it on to the baker, and the baker says he has sent it on to you.

Greengrocer. I am so sorry, madam, I'm afraid your shoe is not here at the moment. The stain would not come out with lemon juice, so I sent it round to the candlestick maker, to—er—to—er—to ask his advice! But won't you taste one of these strawberries, madam, all freshly picked this morning?

[*Greengrocer offers Mrs. Hurrybustle a strawberry She eats it*]

Mrs. Hurrybustle. They certainly are delicious I must have a pound of them. What a lot of things I seem to be buying to-day! And I did not mean to do any shopping. I must stop to arrange my parcels a little

[*While Mrs Hurrybustle is arranging her parcels, the Greengrocer tries to pass on the shoe to Candlestick Maker, but he will not take it*]

Candlestick Maker No, it is a stupid idea, I won't join in your silly plan

Greengrocer. Very well then I shall take the shoe back to the cobbler But you are acting very foolishly, you know, and you'll be sorry.

[*Greengrocer takes the shoe back to Cobbler*]

Mrs. Hurrybustle Why, it's four o'clock! It is my tea time, and I am *so* hungry

[*Greengrocer gives Mrs Hurrybustle the basket of strawberries and she pays him*]

Mrs Hurrybustle Thank you, good afternoon

Greengrocer. Thank *you*, madam, good afternoon.

[*Mrs Hurrybustle goes to the Candlestick Maker's shop and knocks*]

Mrs Hurrybustle Have *you* got my shoe? Please give it to me at once.

Candlestick Maker No indeed, I would not be so silly——

Mrs. Hurrybustle (*losing her temper*) You call it silly to give me my shoe? You are a very rude old man, and I shall never visit your shop again. I was going to buy a china candlestick for my best bedroom, but now I shall not buy anything at all.

[*Mrs. Hurrybustle marches back to the Cobbler's shop muttering to herself*]

He is a very, very, very rude old man

[*Outside the Cobbler's shop she bumps into Cobbler who has come out to meet her*]

Mrs Hurrybustle Oh! I beg your pardon I was so angry with the Candlestick Maker that I did not see where I was going

Cobbler Don't be angry with him. He is only a poor old man without much sense. Won't you come into my shop and rest for a while? Your shoe has come back.

Mrs. Hurrybustle. Thank you very much What a relief it is to meet a polite shopman after that impertinent Candlestick Maker!

[*She goes up to the shop*]

What pretty little red slippers!

Cobbler. I think they would look very well on your pretty little feet.

Mrs Hurrybustle How kind of you to say so I really think I must buy them

[*Cobbler wraps up the slippers and the shoe, Mrs Hurrybustle pays and puts the parcel in her bag.*]

Mrs Hurrybustle. You are the most obliging of all the shopmen in the town, Cobbler But they are all very kind. I must tell my friends how obliging they all are—except that horrid Candlestick Maker.

[*Mrs Hurrybustle goes out The shopmen all come out of their shops*]

Butcher Every one of us has sold something. Three cheers for the clever Cobbler Hip! Hip!

All HURRAH!

Candlestick Maker Cobbler, you were right and I was wrong I am sorry I was so ill-natured.

Cobbler That's quite all right. I am only sorry you have not sold anything

[*Mrs Hurrybustle comes running in again. She goes to the Candlestick Maker's shop*]

Mrs Hurrybustle I think I will have that candlestick, after all

Candlestick Maker. Allow me to make you a present of it, madam.

Mrs Hurrybustle Oh how good of you! You are the kindest of all these kind shopmen of Tinytown In future I shall do all my shopping here, and tell my friends to do so too And you may send me a dozen candlesticks to-morrow.

Cobbler. Three cheers for Candles! Hip! hip!

All. HURRAH!

[*The shopmen make a half-circle round Candlestick Maker and Mrs Hurrybustle*]

Cobbler

Our story has told
How tricks may win gold,

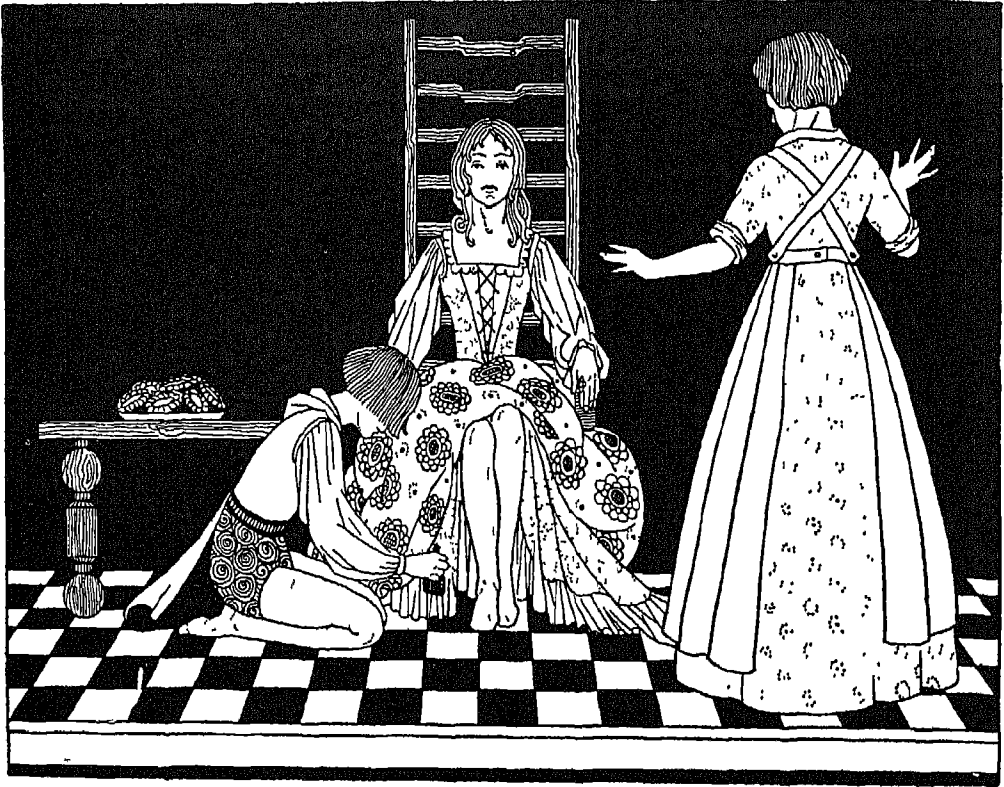
Candlestick Maker

But I think you will find
It pays best to be kind

Mrs Hurrybustle

Won't you all come to tea
At my cottage with me?

All. Hurrah!

[*They dance out—Mrs. Hurrybustle with the Candlestick Maker who carries the candlestick, and the rest follow in pairs*]

FAIRYFOOT

This is a one-act play Read it straight through, then choose the actors to read the spoken parts aloud, playing the actions as they are told

People in the play—COOK KITCHENMAID PRINCE PIP PRINCESS FAIRYFOOT KING OF AMSTERDAMSTER QUEEN OF AMSTERDAMSTER

Things wanted in the play—A pastry board and rolling pin A plate. Some patty tins with tarts in them. Some cake Two pairs of very large shoes Materials for cleaning shoes A signet ring A small bottle filled with water. A pencil and paper

Scene—The kitchen of the palace of Amsterdamster There are a table, two chairs, and a cupboard which stands for an oven

[*Cook is rolling out pastry on the table. Kitchenmaid is cleaning a large pair of shoes*]

Kitchenmaid. Poor Princess Fairyfoot! How heavy her large feet must be! These shoes of hers are bigger than my father's.

Cook. It's hard on the King and Queen too. There they are, spending all their money trying to find someone who can make her feet even one size smaller.

Kitchenmaid. I don't see why it should worry *them* so much. The Princess is the one who really suffers—no dances, poor thing, as her feet make her so tired; no handsome Prince to dance with.

Cook. That's just the trouble. While the Princess's feet are so large no really good Prince is likely to marry her, and then who is to be king and wear the crown of Amsterdamster after the old king dies?

Kitchenmaid I hadn't thought of that. There certainly can't be many men, Princes or no, who would want a wife with feet like this

[*Kitchenmaid holds up shoe*]

Kitchenmaid It puzzles me why they called her Fairyfoot It only seems to make things worse

Cook. I think they hoped her name would encourage her, that she would try to live up to it, you know.

[*Kitchenmaid giggles*]

Kitchenmaid She has not only lived *up* to it, she has lived *past* it.

[*Prince Pip knocks at the door*]

Cook Now who can that be at this time in the morning? Run to the door, Kitchenmaid, and see who is there.

[*Kitchenmaid goes to the door, opens it and looks outside*]

Kitchenmaid. Why, it's a strange boy!

Cook Ask him in.

Kitchenmaid. Come in, Dirty-face.

[*Prince Pip comes in He is poorly dressed He has a ring on his finger and a bottle of water in his pocket.*]

Cook. What do you want, young man, at the palace of Amsterdamster?

Prince Pip. If you please, ma'am, I was hoping that you might be in need of a scullery boy. I will work hard and well for small wages.

[*Cook stops her work and looks at him*]

Cook. Well, you look a likely lad. What's your name?

Prince Pip. Pip, ma'am.

Cook Pip what?

Prince Pip Just Pip, ma'am.

[*Kitchenmaid giggles*]

Kitchenmaid. Orange Pip or Apple Pip?

Cook. Be quiet, Kitchenmaid The lad has a right to whatever name he chooses. Poor boy, he looks hungry and tired Yes, you can stay here, we can find you plenty of work to do

Prince Pip. Thank you very much, ma'am

[*Cook hands him a piece of cake*]

Cook You may eat this piece of cake. Then sit down and finish cleaning that pair of shoes Kitchenmaid, you run along and scrub the saucepans. I must finish these tarts for the Princess's eleven o'clock lunch She will be here asking for them in a few minutes. We are all behind with the work to-day.

[*Prince Pip eats the cake He sits down and polishes the shoes. Kitchenmaid leaves the room Cook puts the tarts in the oven and tidies the table.*]

Prince Pip. Oh, what lovely big feet this lady has!

Cook. Don't be rude, boy. Those are the shoes of the Princess Fairyfoot.

Prince Pip. In my country everyone has beautiful big feet like these

Cook Yours are not very big.

Prince Pip That is why I could not stay in my own country.

[*Prince Pip sighs deeply*]

Cook You are a strange boy. What is your country?

Prince Pip. I come from the kingdom of Trampletown, which is over the mountains, many miles from here. There everyone has feet not less than sixteen inches long, and seven inches wide.

Cook Well I never!

[*The Princess comes in She wears a very large pair of shoes*]

Princess Are my tarts ready, Cook?

[*Cook opens the oven door and looks inside*]

Cook. They will be ready in three more minutes, your Highness.

[*Princess sees Prince Pip*]

Princess. Who is this person?

Cook. He is the new scullery boy, your Highness.

[*Prince Pip gets up from the chair, bows to the Princess, and stands looking at her feet*]

Princess What are you staring at, Scullery Boy?

Prince Pip. Oh, your Highness, I was gazing at your beautiful feet.

[*Princess bursts into tears.*]

Princess. C-c-cruel b-b-boy. How d-d-dare you laugh at me!

[*She dries her eyes angrily.*]

Princess. Send him away! He shall not work here!

Prince Pip. Indeed, your Highness, I am not laughing at you. I come from the Kingdom of Trampletown over the mountains, where everyone has the most lovely large feet. My own were even larger than yours till, by a sad misfortune, I paddled in the magic pool of Shrinkem. Then my feet became the foolish size you see them now, and I, the rightful Prince of Trampletown, was turned out of my own kingdom for ugliness.

Princess. You a Prince! I cannot believe it.

Prince Pip. Your Highness, here on my ring you see the seal of the royal crown of Trampletown.

[*Prince Pip shows her the ring.*]

Princess. This is most extraordinary. What is your name, Prince?

Prince Pip. I was christened Augustus Reginald Theobald Marmaduke Trampletown. But since I lost my throne I have been called Pip.

Princess. Prince Pip, will you share my tarts with me?

Prince Pip. Thank you, Princess.

[*Prince Pip places a chair for the Princess. She sits down on it, and he sits on a chair by her.*]

Cook. They are ready now, your Highness.

[*Cook takes the tarts from the oven, puts them on a plate and gives them to the Princess.*]

Princess. Thank you, Cook.

[*The Princess and the Prince sit and eat the tarts.*]

Princess. I want to hear more about the magic pool of Shrinkem which made your feet small. For five years my father has been trying to find something which would make mine even one size less.

[*Prince Pip takes a bottle of water from his pocket.*]

Prince Pip. In this bottle, Princess, is some of the water of that magic pool. I kept it in case it might come in useful one day. If you would allow me to sprinkle some on your feet, they would immediately become as small as you wish, though to me they are much more beautiful as they are.

Princess. Oh, wonderful Prince! Pray sprinkle my feet at once with your magic water.

[*Prince Pip kneels at her feet. He sprinkles a little water from the bottle on each foot.*]

Princess. Oh! Oh! I can feel them shrinking!

[*Princess kicks off her shoes.*]

Princess. Look! How wonderful!

Cook. Well I never!

Prince. Are they small enough yet?

Princess. A little more, please.

[*Prince sprinkles on a little more water.*]

Prince. That is a good size, I should think.

Princess. That is just as I have always wanted them to be. They are now as tiny as any lady's in the land. Cook, run and fetch me a pair of shoes the right size, and ask the King and Queen to come here at once.

[*Cook runs out.*]

Princess. Prince Pip, how can I ever thank you?

Prince. To be allowed to kiss your hand, most beautiful Princess, would be far more than I deserve.

[*He kisses her hand. The King and Queen come running in. The Cook carries a pair of shoes the right size; the Kitchen-maid comes last.*]

Queen. What's the matter?

King. What is the meaning of this unseemly commotion?

Princess. Look Mamma, look Papa, at my teeny weeny little feet!

Queen. My precious child!

[*She embraces the Princess.*]

King. Most remarkable! My dear, I congratulate you, I have never seen a smaller pair of feet in my life.

[*He embraces the Princess.*]

Kitchenmaid. Goodness me!

Cook Here are the shoes, your Highness, they are the smallest size made.

Prince Please allow me the honour of putting them on for you.

[*Princess sits down. Prince kneels and puts on her shoes*]

Queen. Who is this young man, my dear?

Princess Dear Mamma and Papa, this is Prince Augustus Reginald Theobald Marmaduke of the kingdom of Trampletown. It is he who has given me such lovely little feet

King Noble Prince of Trampletown, you are a splendid fellow; you have fulfilled the dearest wish of our lives. We offer you our heartfelt thanks, and the hand of our cherished daughter in marriage.

Prince. Your Majesty, I could wish for no greater happiness, if the Princess is willing

Princess Oh, YES.

Kitchenmaid. Hooray!

King Then we will make immediate preparations for the wedding Shall we say Tuesday week?

[*He turns to the Queen*]

King What do you think, my dear?

Queen. Tuesday week would do very well, I think. We should have time to run up a wedding dress by then.

[*She gets out a pencil and paper and writes as she talks*]

Queen. Cook, you must arrange for the wedding breakfast

Cook. Yes, your Majesty

Queen. Now, what would you all like? Prince, as the bridegroom you should have first choice. What do you say?

Prince. I am specially fond of mince pies.

Queen. Mince pies, certainly And you, my child?

Princess Jelly, please

Queen. Mince pies and jelly I shall choose trifle, and I know the King will want sausage rolls Then of course we must have sandwiches and wedding cake. And there is plenty of ginger wine in the cellar.

Kitchenmaid Oooo!

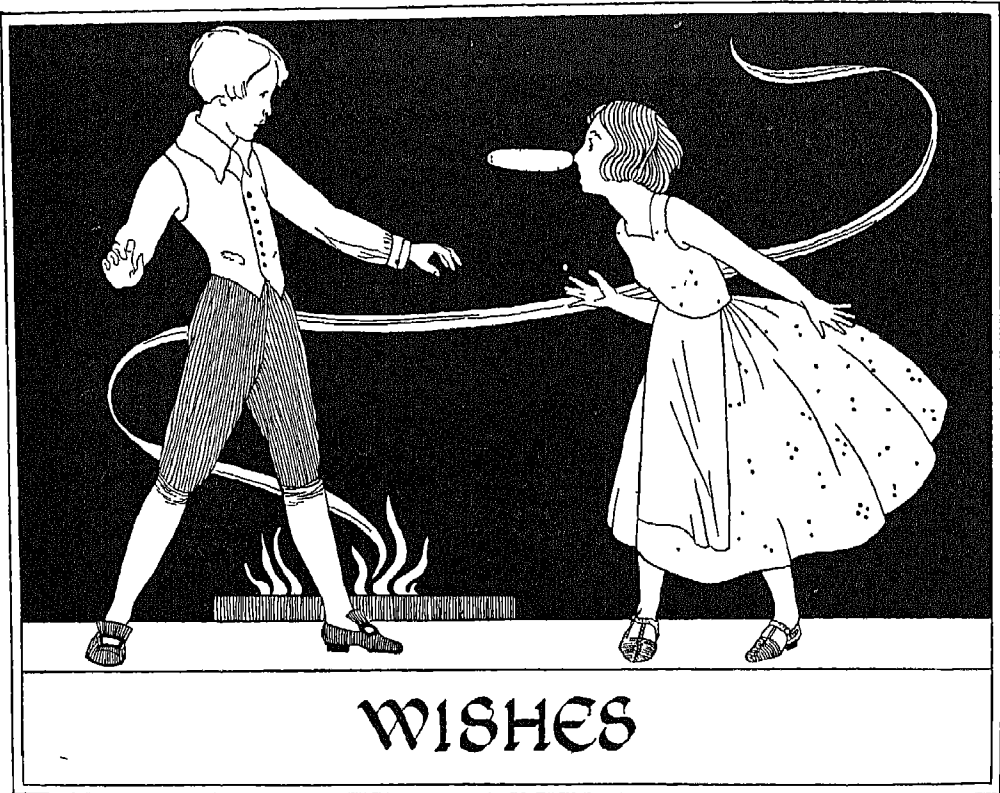
[*Princess begins to skip about.*]

Princess Oh, I can dance now!

[*They all take hands and skip round the table, singing to the tune of Little Bo-Peep*]

The Princess's feet
Have grown so neat
That she dances as light as a feather.
She's given her hand
To the Prince of the land,
And they mean to go dancing together.

The King and the Queen
With smiles are seen,
For they share in the joy of their
daughter;
They are blessing the day
Which brought in their way
The Prince and his wonderful water.

The maid and the cook,
How happy they look!
And all are a-gurgle with laughter.
The cook says she'll bake
A grand wedding cake,
And they'll happily live ever after.

People in the play—MUNCH. GRUMBLE. A FAIRY VOICE

Things wanted in the play—A cooking pan A spoon A poker. A black sausage-shaped balloon on a long string, with a nose clip—like those found on artificial moustaches—fixed at one end of the balloon. A small elfin doll on the end of a long wire.

Scene—The living room of a poor hut. Two stools stand one on each side of the fireplace (The fireplace may be made by covering a clothes horse or easel with a tablecloth, leaving an uncovered space at the bottom to serve as the grate, which may be filled with red paper for flames, with a pocket lamp placed to shine through it.)

[*Munch and Grumble are seated one on each side of the fire. Munch is warming his hands. Grumble stirs something in the pan; she holds in her hand the string of the balloon, which is hidden somewhere in the room.*]

Munch Oh dearie, dearie me! Only fivepence left in the stocking foot, and it is New Year's Eve to-morrow!

Grumble What would I not give for a fine fat goose to turn on my spit? Here have we had nothing but gruel for the last ten days! Never was there such bad luck as ours!

Munch. And neighbour Crabtree tells me that his wife is cooking a pullet for supper this very night.

Grumble. A set of trotters would do for me, or a pound of fine, fresh tripe.

Munch. Even a black pudding would be welcome.

Grumble. Why do you tease me with such notions? I would give the world for a good rich, black pudding

Munch. The world? . . . Yes, if you had it!

Grumble Now, don't be grumpy, Munch.

Munch. And what about you Grumble? You bite my head off every minute of the day!

Grumble. You idle good-for-nothing! Hold your tongue! What do you do but warm your fingers, while I stir and stir at this stupid pot?

Munch. Do not let us quarrel, goodwife. We have little enough. Let us keep our tempers at least.

Grumble. All very well for you.

Munch. Nay-nay now! What do you say to a game of wishing?

Grumble. Wishing, forsooth! Of what use to wish? Will wishing make the fire burn faster?

Munch Ah, indeed you are right But though we are poor we may see our wishes in the fire.

Grumble. Stuff and nonsense!

[*Munch peers into the fire*]

Munch. But I can! I can see a great castle with soot-black walls and glowing windows! Inside the people are dancing Listen! You can hear the rustle of their feet. . . .

Grumble. Foolish man! It is only the whisper of the falling ashes. See! I push your castle with the poker tip, and it is gone!

[*Grumble pokes the fire.*]

Munch. But there is a cave now, all hung with coloured lanterns, and piled round with boxes of good food, and casks of wine . . . I see strings of onions hanging from the rocky roof, and hams, and sides of bacon.

Grumble. Stupid creature! Ah! If only we were rich, and you could buy all you see!

Munch. Yes, if we were rich!

Grumble. We would have a fine house, and garden, a pig, and a cow!

Munch A horse and trap . . .

Grumble. New gowns . .

Munch. And a . . .

Grumble. But what is the use of wishing, and staring in the fire? We are poor, and have nothing!

Munch Do not say nothing, wife. We have our snug cottage, and there is meal in the barrel yet

Grumble. Meal! Why, you stingy thing! A good piece of roast meat would be more use than all your starings in the fire.

[*Munch suddenly points into the fire*]

Munch. Why, wife! Look! Look!

Grumble. What now?

[*She peers into the fire. Someone behind the fireplace drops the doll on the end of the wire into the grate, in front of Munch and Grumble, and moves the doll up and down*]

Munch In the fire . . . something is stirring among the coals, something small and bright . . . see it slips out between the bars, stands on the hearth!

Grumble. It sparkles like a red hot coal!

Munch. It is an elf . . . a mannikin!

Fairy Voice (*from behind the fireplace*). Good evening, good people. What is all this talk of wishes?

Munch. Why, my goodwife and I were but thinking how we wished we were rich.

Grumble. Yes, little master. If we had our wishes we might be happy at last!

Fairy Voice. You would do little good with your wishes, I am sure. Why, you argue so, you could not agree what to wish for!

Munch That would I, master!

Fairy Voice Try then! I will give you three wishes See what use you can make of them

[*The doll is pulled up and disappears*]

Grumble. Upon my word! Strange doings in one's own house! Appearings and disappearings!

Munch. But he gave us three wishes . . . What shall we have? Think, wife, think!

Grumble. I would have wealth, plenty of money to buy what we desire.

Munch. But without health of what use would the money be to us? We could not

enjoy the good things if we were aching with rheumatism.

Grumble Dear me! How hungry I am! I wish we had a good black pudding for our supper to-night.

[*Grumble pulls the string attached to the balloon, so that it comes bounding along into her lap*]

Munch Woman! What have you done? . . . You have wasted a whole precious wish! Why can you not keep a still tongue in your head? But women are all the same! Chatter! Chatter! Chatter! I am sure I wish the pudding would stick to your foolish nose!

[*Grumble turns aside and quickly clips the balloon to her nose.*]

Grumble Mercy on me! Wretch! See what you've done! I cannot pull it off!

Munch Alas! There goes our second wish! Plague on my stupid tongue! *I* have wasted a wish now!

Grumble. Pull it off! Pull it off!

[*Munch tries to pull it off her nose*]

Grumble Oh! Oh! You hurt!

Munch. It will not come off. Then it must stay See, wife Grumble, we will wish for riches, and you shall ride in a glass coach, and have a golden case to put over your pudding nose

Grumble. What! Do you think that I will go through life with this black tail on my face . . . for all the world like an elephant in a circus tent? You booby! It is your fault! And you shall wish it away, or I will never speak to you again!

Munch But, my dear . . the riches! Our heart's desire!

Grumble. I tell you I *must* be rid of this horrible thing! What does anything else matter? Wish, booby, wish!

Munch. I—I—Well, then, I wish that the pudding would fall off your nose

[*Grumble puts up her hands and pushes off the balloon*]

Grumble. I am free!

Munch And there is an end of our wishing!

[*The elfin doll is again dropped into the grate*]

Fairy Voice. And much good it has done you! Can you not be content with what you have, and not spend your time in grumbling, and idle words?

Munch Let us have one more wish!

Grumble Just one, kind elf!

Fairy Voice Not one. . . . You must find your wishes in the fire in future.

[*The elfin doll disappears*]

Grumble. And that is that! We are no better off than before; all through your ill temper, and hasty words!

Munch Well, wife, we have each other Let us try to be content, and work for our wishes

Grumble. Well, *I* will try.

Munch And so will I. . . We will try together!

[*They stand up hand in hand.*]

Munch.

I wish I were, I wish I were, I wish I were a king.
I wish I could, I wish I could do some exciting thing.
I wish I had, I wish I had a thousand pounds to spend.
I wish my dreams of Make-Believe would never, never end.

Grumble

If wishes were horses then beggars would ride
I'd have a car lined with velvet inside!
You'd have an aeroplane, I should be clever,
We'd eat cakes and ices for ever and ever.

Both together.

But as magic comes only through fairies and elves,
We'll work for our wishes, and earn them ourselves!

Munch Now let's eat the black pudding

THE BURNT CAKES

People in the play —A COTTAGER His WIFE A WANDERER.

Things wanted in the play —A bowl and spoon Several biscuits. A sword

Scene —A poor cottage kitchen It has one door, and a fire burns on the hearth. There is a table in the middle of the room and a stool by the hearth

[*Wife is making cakes at the table*]

Wife Dear! dear! My goodman is late again! His dinner will be spoiled I am glad I thought of making these cakes which he can take with him to the forest

[*Wife puts down the cakes in front of the fire and stirs some broth in a basin*]

But indeed I fear for him every day when he is away from me. With the land full of these dreadful Danes there is no knowing if he will ever come back safely

[*Wife puts her apron to her eyes*]

Bad times! Alas! One never knows when the house may not be burned over one's head If only our king could drive them out! They say he is a good man, and as learned as a priest. How I should like to see him!

[*There is a knock at the door*]

Who is there?

Cottager (*speaking from outside*) It is I, goodwife, and a guest Unbar the door. We are weary and hungry.

[*Wife opens the door In come the Cottager and Wanderer*]

Cottager Ah! It is good to be at home!

Wanderer. You have a snug cot here, and the fire is very welcome Good day to you, mistress

Wife. And who may this be?

Cottager. Hush, wife! He is a stranger who is my very good friend.

Wife. Friend, forsooth! One has need of friends in these evil times (*She whispers.*) But I like not the look of him. His sword is hacked and worn, and his shoes are ragged. He is a fighter, and no peaceful man.

[*Wanderer sits on the stool by the fire*]

Cottager Silence, Wife!

Wife And look how he stares and stares in the fire, as if he were not here!

Cottager He is very weary Give him food, and let him rest I must away back to the forest There is work to be done.

[*Wanderer eats soup from the bowl.*]

Wife. And you will leave this man here?

Cottager. He will not harm you. He has fled from the Danes and must lie hid for a while Take care of him.

[*Cottager goes out.*]

Wife Well, so I am to look after this great staring gaby of a man . and he has eaten half the broth already Here, you! What is your name?

Wanderer. I have lost it, good woman But I shall win it back again . . some day. (*He sighs*).

Wife. Law save us! The man is daft! . . Well, if you will cumber my hearth with your great limbs you may as well earn your place Watch those cakes for me while I go to draw water from the well. See that they do not burn

Wanderer. Willingly, dame

[*Wife goes out.*]

Wanderer (*talking to himself*) Ah! If I could lure the Danes into the marshes, and bring up my men through the tall reeds, and surround them! . . But my enemies are so many, and so strong, and we are so few, and very weary. . . . But we are Englishmen. It is our country that we are trying to save from their cruel claws. . . . We *must* drive them out! We *must* win. . . . Yet we are beaten up and down the land, and I am forced to hide in this poor hut like a rabbit in its hole. . . It seems that I shall never succeed. The Danes will go on their fiery way until there is not a church left standing, or a free man left alive through the length and breadth of England. . . . I have no hope left. . . A poor king, indeed! A ragged starving creature with no home, no hope . . . but I *will not* give up till my life is done I *will* try once more . . . I *will* drive them off!

[*Wanderer jumps up and waves his sword Wife comes in and sees him*]

Wife. What in the world? . . . Is the man mad? Talking to himself in an empty house! And my cakes, my beautiful cakes! Burnt to a cinder! Oh! You idle good-for-nothing creature you! Take that!

[*Wife boxes the Wanderer's ears*]

Wanderer I—good dame, I am truly sorry! . . . It was very foolish of me. I was thinking. I fear I am a poor thing indeed. I cannot even watch cakes.

[*Cottager comes in.*]

Wife A fine friend this! Here I left him for two minutes to watch my cakes, and he let them spoil! But I boxed his ears for him!

Wanderer (*laughing*) Right heartily!

Cottager Boxed his ears! You are mad! . . . Don't you know who . . ?

Wanderer. Hush! Your wife chid me for idle dreaming, and she was right. I have dreamed enough. I must *do*, even if it is only a little thing, like minding cakes.

Wife A little thing that my cakes are spoiled!

Wanderer. Forgive me, dame

Cottager. She shall ask your pardon on her knees This is the King, wife.

Wife. Alas! And I have boxed his ears!

Cottager. Forgive her, master.

[*They both kneel before the King.*]

King. She must forgive me. She has done me a service, waked me smartly from my dreams. I shall go out now, I have a new plan. I mean to drive the Danes into the sea,—and free England!

THE SHOP-WINDOW FAIRY

People in the play.—SHOP-WINDOW FAIRY (a fair-haired girl dressed in white with gauze wings, holding a wand tipped by a golden star). SOLDIER DOLL (a very small boy in a scarlet uniform). SAILOR DOLL (a medium-sized boy in a sailor suit) RED RIDING HOOD DOLL (a black-haired little girl in a red cape) JACK-IN-THE-BOX (a very small boy dressed in a gay tricoloured costume His box is gaily painted and must be large enough for him to sit inside with the lid down). DINAH, THE BLACK DOLL (a little girl with a black stocking covering for her face and hands, dressed in red gingham with a yellow fichu). THREE MANDARIN DOLLS (three little boys of about the same size dressed in crêpe paper mandarin costumes) DUTCH DOLL (a small fair girl dressed in Dutch fashion, with clogs) CLOWN DOLL (a little boy dressed as a circus clown, with a rice-powdered face) PINKIE (a girl in a light frock to represent an ordinary doll) ROSEBUD (another ordinary doll). LITTLE BEGGAR GIRL (a big girl, in contrast to the "dolls" She should be dark-haired, wearing an outer garment of rags and patches which conceals a pretty party frock beneath. Her white socks are covered by black ones full of rents, and her white slippers are hidden in Jack's box)

Scene—A shop window late at night when the shop is closed. At the back of the stage stands a gaily ornamented fir tree The Shop-Window Fairy and several of the other dolls stand on green stools under the tree so that they appear to be dangling from it. The other dolls are arranged as in a shop window.

[*The curtain rises to music, which gradually dies away. Then heavy footsteps and a policeman's whistle are heard off-stage There is a tiny flutter among the dolls, and a murmur of "Sh!" The sounds die away, and the Jack-in-the-box noisily bumps up his lid*]

Jack (*thumping the side of his box*) Bang it! Bang it! Has he gone by?

Soldier (*coming stiffly to attention*). Yes, he has, but he may come back if you make so much noise We shall have to fasten your lid down so that you cannot come out

Dutch Doll That would serve him right He is so noisy.

Jack (*in alarm*). Don't, oh, please don't do that. I really will be good. I will keep very quiet and you won't know I am here.

Fairy (*slowly waking up*). Why, where am I? . . . Oh, yes, I remember. . . What did the Fairy Queen say? That I was to go into exile from Fairyland. . . . But what a noisy place this is! This punishment is surely worse than I deserved.

[*Fairy comes down from the tree and steps to the centre of the stage, and sings The other dolls nod their heads sympathetically in stiff doll fashion At the end of the verse and refrain they pirouette jerkily round and drop back into their original positions*]

Fairy (*sings, to the air of "I've Got a Pain in my Sawdust", by Warner and Wade.*)

Oh, once I was seated in Fairyland Court,
And dreaming of real-world delight.
To see little children I thought would be sport,
And really a wonderful sight
But, ah, woe is me, for a shop-keeper heard
The wish I had murmured aloud;
And, lo, on that day, I was brought here to stay,
In the midst of this babbling crowd.

All the Dolls

Oh, deary me, I am homesick,
That's what's the matter with me.
Though it is gay Christmas season
I'm just as sad as can be,
Shut up in here, where my beautiful wings
Seem like two useless and burdensome things,
No longer the heart in my fairy breast sings,
Oh, but I'm dreadfully homesick!

[*Fairy glides back into her place in the tree The three Mandarins patter down-stage*]

Mandarins (*all together*) You should have come from China, as we do, then you wouldn't mind the noise Why, it's as quiet as anything here, compared with China.

[*The Mandarins dance in Chinese fashion to the "Chinese Dance" from the "Casse-Noisette Suite" by Tschaikowsky They sway their arms, heads and upper part of their bodies in time to the music They then speak all together in a sing-song voice, without music*]

Mandarins.

In gay Cathay
So far away,
Alas, we have no Christmas Day!

The Dolls (*speaking to one another in surprise*) What! No Christmas Day!

Mandarins.

So you see
We'd rather be
In the happy land of Christmas tree

The Dolls (*nodding their heads*). In the happy land of Christmas tree

[*The Mandarins patter back to their places.*]

Fairy. I don't agree with you at all I think this is a dreadful place Oh, how I wish I were back in Fairyland!

Red Riding Hood (*coaxingly*). Please don't say that. You can't think how glad we all are to have you here A real fairy in our shop! Why, it's something we shall never forget

Fairy But it's such a dull place. And the worst of it is that everything is only make-believe.

Rosebud Make-believe? Nonsense! Look at those red candles Don't tell me that they are make-believe.

Fairy. Why, of course they are They should be fireflies and glowworms, living candles, not dead waxen things. Our fireflies flit about from tree to tree, but your candles can't jump about at all. They stay just where you put them Dull, I call it. Everything is dull here.

Pinkie. I am so sorry that you find this place dull. Now I love being here. It was dull in that old factory where I was made, if you like. But here . . oh, it's so exciting Every time a little girl comes into this shop, my heart goes pit-a-pat. For some day, sometime, a little girl is certain to buy me. And then I shall have a real Mamma Oh, how I want a Mamma.

Fairy What a funny thing to want. Now if you wanted something sensible,—like a bit of the rainbow to slide down on—I could understand it.

Jack. You *are* silly! Your chatter annoys me. Bang it! bang it!

[*Jack thumps on the side of his box*]

Red Riding Hood. Oh, Jack dear, please don't make such a noise, or you'll bring the watchman back.

Dinah (*shaking her finger at him*) Now, honey, you just must be good.

Sailor. If customers knew him as well as we do, I'm sure he wouldn't sell

Soldier But for all that, he may be the first to go. You never can tell.

Rosebud. I am afraid it is the quiet ones who stay in the shop the longest.

Clown. Won't someone come and wind me up so that I can walk about too?

[*Sailor winds him up The Clown tumbles down-stage and handsprings back to his place*]

It's good to be awake again. How I hate the daytime!

Fairy. I have never seen a clown before. How comical he is!

Dinah (*scornfully*). Ah, sure 'nough, I guess I daunces good as he does. Look at me!

[*Dinah dances a "Cake walk" round the tree The other dolls clap her in wooden fashion.*]

Sailor I should love to be sold too.

Soldier. And I certainly don't want to be left here all by myself

Pinkie. I long to see what the outside world is like

Jack. And I'd like to go to a house where there are lots of boys to play and make a noise with.

Three Mandarins (*together*). We wish someone would buy us too.

Red Riding Hood. I don't think any little girl will buy me now, because they don't like fairy-tale dolls any more

Fairy. You all seem to agree with me that this shop life is very dull.

Rosebud. No, we all like the shop, but we are curious to see what is outside

Fairy What strange creatures you are! Do you all want to be sold?

The Dolls (*all together*). Yes, we do!

Fairy. I am a true fairy with magic power. With a wave of my wand your wishes can be granted.

The Dolls (*all together*). OH!

Three Mandarins. We want to stick together always, please remember that

Fairy (*as she waves her wand*) May all your wishes come true! To-morrow you will all be sold!

The Dolls (*all together*). Hurrah! hurrah!

[*They all dance about in their own fashion—the Clown turns somersaults and Dinah cakewalks, Jack beats his box for a drum. As they parade they sing to the air of "I'm Called Little Buttercup" from "H.M S Pinafore".*]

The Dolls.

We're going to be sold, you see,
Going to be sold, you see;
That's why we're singing for joy.
We shall soon find ourselves,
Leaving these dusty shelves

Soldier and Sailor.

Bought by a girl or a boy,
We're going to have mothers,
And sisters and brothers,
Who'll play with us every day.

Rosebud and Pinkie.

We'll wear fluffy laces
And learn airs and graces,
And that is the reason we say—

The Dolls (*all together*).

To-morrow's the happy day,
Yes, that's the happy day,
Speed then, O hours, and pass by,
We shall hear many feet
As through the city street
People come hastening to buy.

[*The Dolls return to the original places A wailing sound is heard off-stage, which grows louder and louder*]

Fairy. Listen! What is that?

Soldier. It sounds like a child weeping in the street

Sailor. Not at this hour of the night, surely!

Dinah Yes, it is.

Fairy. Run and see what it is, one of you.

[*Clown runs off*]

Dutch Doll Children should all be in bed by now. I expect it is only the wind.

[*Clown runs in*]

The Dolls (*all together*). What did you see?

Clown (*impressively*). I looked through a pane of the big shop door, and I saw a little girl weeping Her clothes are ragged and old, but she is very pretty.

Fairy. Why didn't you bring her in?

Clown I couldn't, because the door was locked.

Fairy. Then I will wish it open for you

[*Fairy waves her wand.*]

Now, clown, go and fetch her.

Rosebud. Oh, wonderful Fairy, why have you come to live in a shop?

Fairy. Well, you see, the shopkeeper sent to the queen of the fairies to ask for one of us as an ornament for his window at Christmas time. I had been naughty, so she chose me, and sent me here as a punishment. Here I must stay until the queen forgives me and allows me to go back to fairyland.

[*Clown returns, leading the Beggar Girl by the hand. She rubs her eyes, and sobs once or twice, then stares about her in astonishment.*]

Beggar Girl. Where am I? Am I dreaming?

Sailor. She is a very pretty child.

Pinkie. And she has such a sweet smile.

Dutch Doll. She would look lovely dressed in silk and satin.

Rosebud. Just what I was thinking.

Beggar Girl. The dolls seem to be talking. What a funny dream I am having!

Fairy. This is no dream, little girl.

Beggar Girl. Oh, the Fairy is speaking! *Did* you speak, Fairy?

Jack (*banging his box*). Bang! Bang! She thinks that nobody can speak but herself!

Fairy. Come and tell us your troubles, little girl.

Dinah. Why do you cry in the middle of the night?

Beggar Girl. Because I have no home to go to, and I was cold. Don't send me away again, *please!*

[*She begins to cry again.*]

Three Mandarins. Oh, poor little girl!

Rosebud. Fairy, can't you help her?

Soldier. Yes, with some of your magic.

Fairy (*doubtfully*). I don't know quite what to do to help her. I could change her into a doll.

Beggar Girl (*in alarm*). Oh, but I should hate that!

Fairy. Well, I could make her a fairy.

Beggar Girl. But I want to be a little girl.

Fairy. What do the rest of you think?

Red Riding Hood. Change her rags into lovely clothes, first of all.

Dutch Doll. A fine idea!

Rosebud. Make her look so beautiful and sweet that some nice people will want to adopt her.

Fairy. Those are good wishes, and very easy to perform.

Beggar Girl. Oh, what a wonderful dream this is! I hope I never wake up.

Fairy. Jack, you can be really useful for once. Bring me your box.

[*Jack steps out of his box; several dolls drag it to the centre of the stage.*]

Fairy. Step inside, little girl, and you shall see my fairy power.

[*Beggar Girl hesitates, but finally steps inside. She crouches down and Jack shuts the lid over her.*]

Now as I work my magic spell, each of you speak your Christmas wish to her.

[*The Fairy waves her wand as each doll says her wish.*]

Rosebud. I wish her to have a dainty little dress.

Pinkie. And I should like her to have some pretty slippers on her feet.

Jack. And I wish for some buckles to match them.

Dutch Doll. I would like her to have some pretty white socks.

Red Riding Hood. My wish is for her to have a beautiful hat.

Clown. And mine . . but how can a boy know what a girl likes,—I wish that she may be very happy in her own way.

Fairy. Is that all?

Sailor. Oh, Fairy, you had better wish for us boys. I can't think of a thing.

Three Mandarins. We wish a purse of gold for her.

Fairy. And I wish for her all that you have not thought of.

The Dolls sing to the chorus of "Swing Song" from "Veronique."

Sing high, sing low,
Sing high, sing low,
Oh, sing of the magic that Fairies know.

In mystic rhyme,
In tune and time,
All magic enchantment has surely to go.

Sing high, sing low;
Sing high, sing low,
Behold what we sing you most surely is so
Now Fairy's art,
Has done its part,
Come, open the lid, the results we'd know

[*All draw anxiously near as the Fairy opens the lid They fall back with exclamations of surprise and delight as the Beggar Girl steps out in her party frock and slippers*]

Clown Oh Fairy, how beautifully you have managed everything!

Pinkie I am sure everyone will be wanting to adopt her.

[*The Beggar Girl has been admiring herself She now kneels to the Fairy and takes her hand*]

Beggar Girl How can I thank you, Fairy dear? I am too happy to speak

Fairy (*drawing the Beggar Girl to her feet*). Don't kneel to me, child I don't deserve it I have been so cross all day

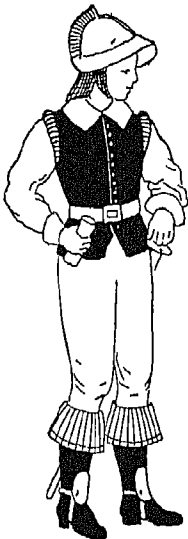
Rosebud But you are not cross now?

Fairy I am very happy now, to have made you all so happy

Beggar Girl (*opening her arms to the dolls*). When the shop opens I will buy you all!

[*Dolls sing to the air of "I'm Called Little Buttercup"*]

To-day is the happy day,
Yes, it's the happy day,
Now all our wishes come true.
Bought by a mamma kind,
Leaving the shop behind,—
Sing we, dear Fairy, to you!

[*They murmur "Sh!" and gradually become rigid in their places, the Beggar Girl watching them The curtain falls to music*]

SLEEPY CECILY

People in the play —RUPERT (the son of a Cavalier gentleman He wears a velvet suit with a lace collar and cuffs, and should have long curly hair) MARGARET (Rupert's sister. She wears a stiff silk dress, with puffed sleeves, a high waist and white cuffs and collar). BABY CECILY (the youngest sister. She wears a long cotton frock with a plain white collar and a round white cap). THE ROUNDHEAD CAPTAIN (a boy wearing a tunic, breeches and long boots. Round his waist is a leather belt with a sword in it, and on his head a steel cap. This may be made of cardboard painted silver, and is in the form of a round cap with side

pieces) Two ROUNDHEAD SOLDIERS (boys dressed like the Captain, but without swords). SIR RICHARD LOVELACE (a Cavalier). (He wears a satin doublet and breeches, with a lace collar, and a broad sash round his waist. Over his shoulder is a scarf He has a broad felt hat with a feather in it, and a long curled wig) FOUR CAVALIER SOLDIERS (they are dressed like Sir Richard, only more simply). THE COLONEL (the children's father) A MAID (dressed in a long plain frock with a fichu, and a white cap and apron)

Scene —The children's room in the Colonel's house. There is a door on the left and a French window at the back of the stage with curtains hanging over it down to the ground The window may be made by means of a large sheet of light-blue cloth or paper, with strips of white or grey paper pasted across it to represent bars Under the window is a small window seat When the curtains are drawn back so that the window seat shows, there is room for someone to stand behind them without being seen. There are cushions on the seat, and an armchair on the right of the stage.

[*It is evening The curtains are drawn well across, and Baby Cecily is lying curled up on the cushions of the window seat behind the curtains. Rupert is sitting on the floor playing with some toy bricks, and Margaret sits in the chair embroidering a scarf.*]

Rupert. Look, Margaret, I have divided my bricks into two parties. These are the Roundhead soldiers, and these over here are the King's army.

Margaret. Which is Father's troop of horse?

Rupert. These bricks at the end here. Now we will have a grand battle Margaret, come and move the Roundheads for me

Margaret. No, Rupert, I have no time to play with you. This embroidery must be finished by to-night.

Rupert. Why by to-night?

Margaret. In case Father should come home as he promised. I am embroidering a scarf for him to wear when he rides with the King, and if he comes to-night I want him to take it away with him. So you see I have no time for play.

Rupert. Then Cecily must play with me. Where is she?

Margaret. She was sitting on the floor just now, playing with her doll. She can't be far away.

Rupert. Cecily! Where are you?

[*The curtains part and Cecily's sleepy face peeps out.*]

Rupert. Come out and play soldiers with me.

Cecily. No, I'm too sleepy. I was fast asleep till you woke me up

Rupert. You are always asleep. It will do you good to come out and play.

[*He pulls her out*]

Margaret Don't be unkind, Rupert.

Rupert. She is lazy and must be taught better.

[*Cecily begins to cry*]

Cecily. You horrid boy! I shall go away and hide where you can't find me.

[*She runs out.*]

Rupert Silly little thing!

[*He goes back to his bricks*]

Margaret It is best to leave her alone, I think. Old Hodge the gardener brought news this morning.

Rupert. Did he? What was it?

Margaret. He said he had heard that there were troops about.

Rupert. Ours, or the rebels'?

Margaret. Both, he said.

Rupert Then there will be a battle. How splendid! I shall go out and watch.

Margaret. Oh no! You might be killed.

[*Sir Richard Lovelace appears in the doorway and stands listening. He has his arm in a sling and appears very weary*]

Rupert. Of course I shan't be killed. You'll have to get used to my going to war when I'm a man, you know

Margaret. But you are not a man yet. Oh, Rupert, promise me not to go out if there is any fighting

[*She kneels beside him and puts her arms round him.*]

Promise, Rupert.

Sir Richard. You would not have your brother a coward, little lady?

[*Both children jump up*]

Margaret. Who are you, sir?

Sir Richard. A friend of your Father. Sir Richard Lovelace is my name. Your servant, Mistress Margaret; and yours, young gentleman

[*He bows to the children*]

Rupert (*running up to him*). We have often heard of you.

Margaret. Oh, sir, you are wounded Pray come in and sit down

Sir Richard. I thank you

[*The children lead him to a chair He sits down as if exhausted*]

Margaret. Have you news of our Father and of the King's army, sir?

Rupert (*eagerly*). Has there been a battle?

Sir Richard It was only a skirmish between my men and a bunch of the rebels. . . But we were tired, and they outnumbered us three to one, and in the end they had the best of it . We were forced to ride for our lives. Some of them followed me, but I think I have shaken them off.

Margaret. Oh, I am so glad Now you can rest here in safety.

Rupert. Tell us about the battle, sir.

Sir Richard. We were riding through the wood over there, when .

[*There is a tramping of feet outside.*]

Sir Richard. Hark! What is that?

Captain's Voice (*outside*) Halt!

Sir Richard (*springing up*). My pursuers have followed me here. Where can I hide?

[*All three look round*]

Rupert Behind the curtains, quick!

Sir Richard It is a poor hiding place, but there is no better.

Margaret Someone is coming Oh, *hurry!*

[*Sir Richard goes behind the curtains The children arrange them carefully Just as they have finished the Maid runs in, very frightened*]

Maid. Miss Margaret! Master Rupert! There are soldiers downstairs!

Margaret What do they want?

Maid They are looking for Sir Richard, —I can't remember his other name.

Rupert How many are they?

Maid. A captain and four men

Rupert. Are they armed?

Maid. Oh yes, Master Rupert. They have steel helmets, and the Captain has the wickedest-looking sword you ever saw

Margaret Go down quietly, Mary, and tell them we are coming.

[*Mary goes out*]

Now, Rupert, we must be very brave. Mother is dead and Father is away. Only you and I are left to save Sir Richard. Remember, his life is in our hands

[*They go out hand in hand After a few moments, Cecily's head appears in the doorway*]

Cecily. They have gone away at last Now I can go back to my warm little nest.

[*She goes to the window, draws the curtains back a little and climbs on to the cushions*]

(*Yawning and stretching*). Ah-h-h-h!

[*She pulls the curtains across*]

Voice of the Roundhead Captain. This way, men!

[*There is a tramping of feet. The Captain enters with his sword drawn. The two soldiers follow him, and the children and the Maid bring up the rear.*]

Captain. This is the last room. We will end our search of the house here. Now men, do your duty There are few hiding places in it so you will have an easy task.

[*The men go round the room, tapping the walls and stamping on the floor*]

Captain (*to the children*) You are sure that no one has been to the house to-day?

Children (*together*) No one, sir

Captain. If you are lying to me, it will be the worse for you It would be a pity to hang such pretty children. (*To himself*) I made sure Lovelace would have taken refuge here He cannot be far off at any rate. I dare not let him slip through my fingers, for it is said that he carries important messages to the King (*Aloud*) Well, my men, have you finished your search?

First Soldier. There are only the curtains, sir.

[*The soldiers go towards the curtains*]

Rupert (in spite of himself). Oh, *don't* look there!

Captain Aha, little man, now you have let the cat out of the bag So he's behind there, is he? Very well, we'll soon have him out

[*Margaret runs to the curtains, and stands with her back to them, her arms stretched out across them*]

Margaret. No, he's *not* here, I tell you! He's *not* here!

Captain Stand away, child

[*He moves Margaret away*]

Now, men, stand one each side ready to seize him. Are you ready?

Second Soldier. Yes, Captain.

[*The children clutch each other's hands*]

Captain. Now Sir Richard, out you come!

[*He strides to the curtains and flings them open, showing little Cecily fast asleep*]

Maid.
Margaret. } *Cecily!*
Rupert

[*Cecily sits up rubbing her eyes*]

Cecily You bad, wicked children to wake me up again, just when I was having the loveliest dream!

[*She looks up and sees the soldiers*]

Oh! Margaret! Margaret!

[*Margaret kneels beside her and hugs her*]

Margaret There, there, darling, don't be frightened No one shall hurt you

Captain No, indeed Why I'd as soon think of hurting my own little daughter Bess What a false alarm!

[*He kneels down beside Margaret and helps to comfort Cecily*]

First Soldier. Poor little maid

Second Soldier. It was a shame to wake the pretty dear.

[*Cecily has stopped crying The Captain gets up*]

Captain Well, men, the man we want isn't here, that's certain. That finishes the house We must continue our search outside before it grows quite dark. We shall need some lights as it is

Margaret Mary shall get you some torches

Captain Thank you, Mistress.

[*The Captain and his men go out with the Maid Rupert and Margaret wait till they have gone, and then fall on their knees one each side of Cecily, who is still sitting on the window seat*]

Margaret. Oh, Cecily, how ever can we thank you?

Rupert I shall never forget as long as I live that awful moment when the Captain drew the curtains! Well, I shall not tease you about being sleepy again.

Cecily. What are you talking about? What have I done?

Sir Richard (appearing between the curtains behind her) Your sleepiness has saved my life, little Mistress Cecily

Cecily (gazing up at him) Margaret, who is it?

Margaret It is Sir Richard Lovelace, dear, one of Father's friends

Cecily What lovely curls!

Margaret Oh, Cecily, how rude!

Sir Richard. Nay, she may well admire them. But for her, the man that wears them would soon be pining away in a dark dungeon. Have you a pair of scissors, Mistress Margaret?

Margaret Yes, they are here by my sewing. Rupert, keep watch by the door lest they should return

[*Rupert goes to the door. Sir Richard sits on the window seat and takes Cecily on his knee Margaret gives him the scissors. He cuts off a lock of his hair and gives it to Cecily*]

Sir Richard There, Mistress Cecily, keep this in memory of the soldier whose life you saved.

[*There is a noise of shouting and scuffling outside The children cling to Sir Richard*]

Voice of the Colonel. Tie their hands behind them and let me look at them. Roundheads, as I live! What do you do here in my house? Bring them into this room

Rupert That is Father's voice.

[*The Colonel comes in, followed by his four soldiers Two soldiers hold the Captain, and two the Captain's men*]

Rupert Father! You have caught them!

Colonel Yes, my boy. I found these Roundhead fellows in my house and we very soon had hold of them.

[*Margaret runs to the Colonel*]

Margaret. Oh, Father, how glad we are to see you!

Colonel. And I am glad too, my children. But who is this? Sir Richard! My friend, I rejoice to see you.

Captain. A plague upon them! He was there after all!

Colonel So it was you they were after, Lovelace

Sir Richard Yes, and they would have had me, too, but for this little lass of yours.

Colonel. Why, what did Cecily do?

Cecily I went to sleep.

Colonel (*laughing*). That is nothing unusual, little one

Margaret. You see, Father, Sir Richard hid behind the curtains, and we went down to keep the soldiers from finding him, if we could

Cecily. Then I came in, and when I found the others had gone, I went to my little warm nest and fell asleep

Sir Richard And I held my breath for fear of waking you.

Captain (*to himself*) Foolish man that I am! My soft heart has cost us our lives

Colonel. But still I do not understand.

Rupert. Then the Roundheads came in, and after searching everywhere else they went to the curtains And when I saw what they were going to do I cried out to them not to open the curtains Oh, sir, will you forgive me? My thoughtlessness might have killed you

Sir Richard I have nothing to forgive. But let us finish the story The Captain drew back the curtains, and found—

Cecily *Me*, fast asleep.

Rupert As usual

Colonel. And so my little Cecily saved a brave man's life This story has a happy ending But now we must see about some supper. Men, take the prisoners away and lock them up.

[*The soldiers prepare to lead the Roundheads away*]

Cecily Where are they going, Father?

Colonel To prison, sweetheart

Cecily Oh, *no!* You mustn't send my nice Captain to prison. He was so kind when I was frightened. *Please* let him go, Father. He hasn't done any harm at all.

Colonel. What do you say, Sir Richard?

Sir Richard. Cecily is our heroine for to-day. I think we must take her word as law

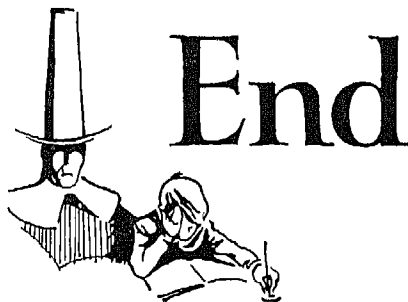
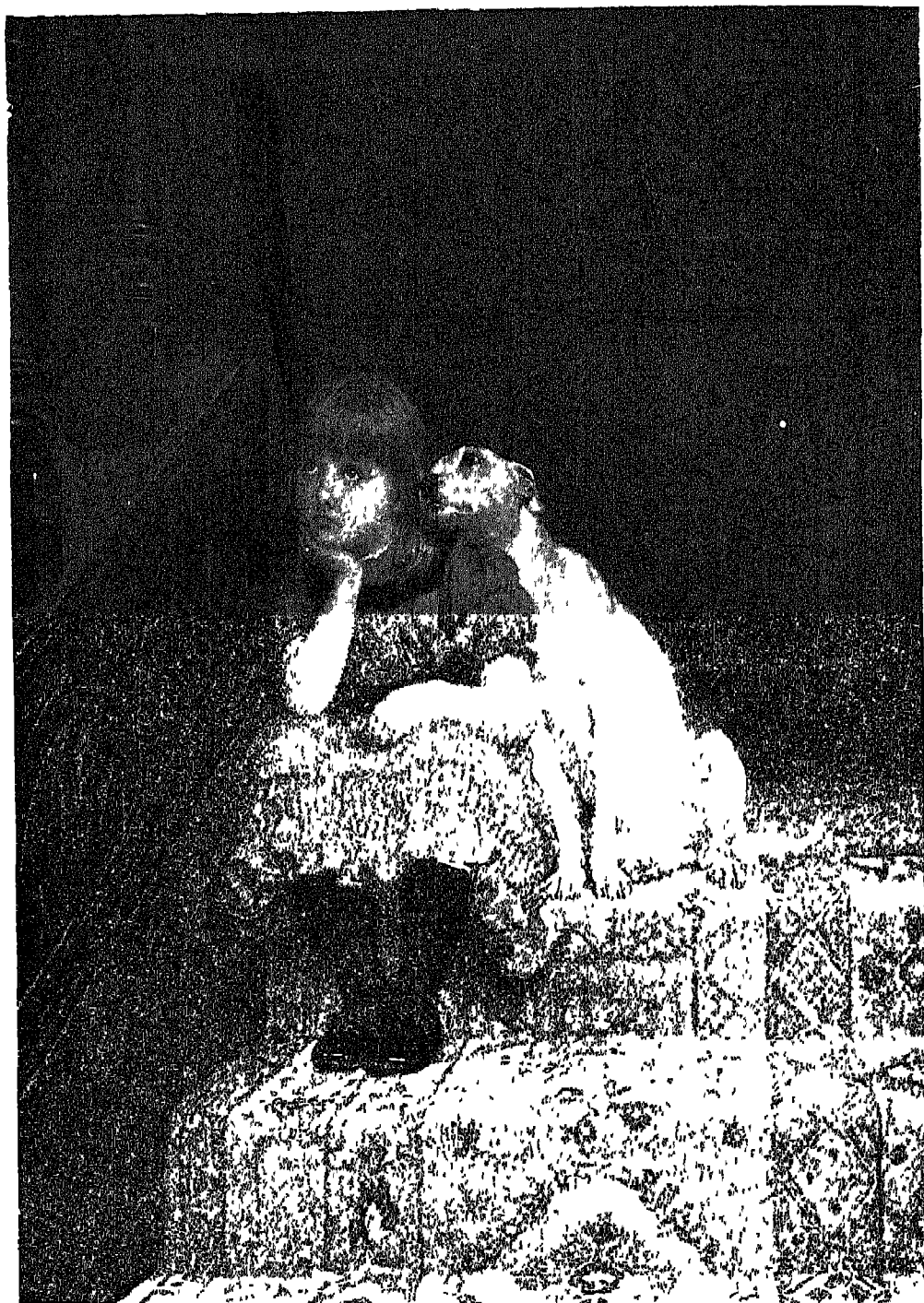
Colonel (*turning to the Captain*). You are the second man who owes his life to Sleepy Cecily Release them, my men, and let them leave the house Good day to you, Captain

Captain. Good day, Colonel.

[*They salute The Captain and his men march out*]

Colonel. And now, Sir Richard, you must stay and sup with us and we will drink the health of my little daughter

Cecily (*climbing into the window seat*) Now I can really go to sleep at last.

Rupert Oh, *sleepy* Cecily!

SECOND YEAR'S COURSE OF POETRY

After the painting by Briton Rivière, R A] [*By permission of Messrs T. Agnew & Sons*

SYMPATHY

POEMS FOR THE SECOND YEAR'S COURSE

THE teacher will find it useful to read again the Introduction on "The Teaching of Poetry" in Volume I. When beginning a class lesson on poetry it is well to make some effort to attune the minds of the children to sympathetic consideration and reception of poetic ideas To appreciate poetry the pupils must be in the mood for it It is difficult after the eager competition of a drill lesson, for example, to settle down quickly to the study of a poem, and it is advisable to prepare for it by an arresting introduction—a short story to lead up to the subject, or the presentation of a picture to excite curiosity. Sometimes it may be convenient to play on the piano a well-chosen piece of music, and at any rate the teacher can begin by reciting a suitable poem or extract

The *Notes* which are appended to the poems are intended to help the teacher in presenting the matter to the children, and the questions are typical of those which might be asked to help the children fully to appreciate the language, beauty and music of the poems. It should be remembered that blackboard sketches in any lesson are valuable, not only to serve as illustrations of particular points, but to arrest the attention and keep the children eager.

There are certain Figures of Speech and other grammatical devices frequently met with in poetry, and although it is unnecessary to refer to them specifically in a lesson, it is advisable for the teacher to recognise them, as this will assist in making the explanations clear.

Rhyming lines.—It is customary to mark the lines with letters of the alphabet in this way

" The sheep are coming home in Greece,	a
Hark the bells on every hill!	b
Flock by flock, and fleece by fleece,	a
Wandering wide a little piece	a
Thro' the evening red and still,	b
Stopping where the pathways cease,	a
Cropping with a hurried will."	b

Not all poetry is rhymed. Shakespeare's plays, for instance, are written in unrhymed or *blank* verse. Modern poets sometimes write in blank verse, but more frequently in rhymed verse, although their arrangement of rhyming lines varies greatly.

Repetition.—Repetition adds force to a word or phrase, "like a blacksmith repeating his blows on an anvil." It gives expression to intense feeling, and often aids in conveying musical sounds such as one hears in the sounds of the wind, the waves, the forest trees and the songs of birds. Frequently the repeated lines at the ends of stanzas form a refrain. This refrain is sometimes like a word dance having no sense but much feeling, such as: "Hey nonny nonny", "Fa la la"; "Derry down day"

Simile.—Note the line: "And the coat I wore was thin as my supper the night before." Here there is a comparison made between a *coat* and a *supper*. These are two different things, but they are alike in both being *thin*. A statement of some point of resemblance supposed to exist between two things that differ in other respects is called a *simile*. Take another example: "She plucked me a rose like her wild-rose cheek." This, too, is a figure of speech called a simile The delicate colour is the point of resemblance supposed to exist between the rose and the cheek.

Stanza, verse, foot.—A *stanza* is the name for each group of verses into which a poem is divided. A *verse* of poetry is a line consisting of a certain number of metrical feet. A *foot*, the unit of verse, is the group of syllables made up of one stressed syllable and one or more unstressed syllables. Thus in the first verse of *To Daffodils* there are four feet, each foot having one stressed syllable preceded by an unstressed syllable. Fair Dáf | fodíls, | we wéep | to sée |

Onomatopoeia.—Many poets take particular delight in using words in which the *sound* is an echo to the *sense* which the words are meant to convey. This Figure of Speech is called *onomatopoeia* (On-o-mat-o-pē'-ya—name-making) Poetry is full of this music of words. We readily recognise the imitative intent in such words and phrases as: croaking frogs, cawing rooks; clucking hens; neighing horses; mewing cats; yelping dogs; grunting pigs; quacking ducks; lowing oxen, bleating sheep, cuckoo, peewit; twitter. Words which are the imitations of sounds are called *onomatopoetic* words.

Alliteration is the repetition of the same letter or syllable, usually at the beginning of two or more words near together:

> " Of **s**till **s**ea and **s**ky
> **S**tands **s**ingle a thi**s**tle."

By alliteration the poet smooths the edges of words and makes soft musical sounds.

Music.—Let the children say the following words in a loud whisper and suggest that they should listen to the music in them:

Ripple, gurgle; bubble; swish; murmur; lily, daffodil; bluebell, marigold; cuckoo; throstle, nightingale, starling, twitter; warble, twinkle; whistle, chirrup

Read softly and lightly the following lines inviting the children to listen quietly:

> " Faintly as tolls the evening chime,
> Our voices keep tune and our oars keep time
> Soon as the woods on shore look dim,
> We'll sing at St Ann's our parting hymn
> Row, brothers, row, the stream runs fast,
> The Rapids are near, and the daylight's past "

Tell the children that a man who can put words together musically is called a poet. Sometimes a poet will try to put into words the song of the birds, or the brook, or the

wind Here is a tiny poem which tries to say in words the song that the wood pigeon sings to his mate

"Coo-pe-coo, Coo-pe-coo,
Me and my poor two;
Two sticks across, and a little bit of moss,
And it will do, do, do."

Stories.—As already noted, it will frequently be found useful to introduce a poetry lesson by a short story. The illustration at the head of this introduction suggests the story of Orpheus which might be told briefly to the pupils.

A very old story is told of a famous man named Orpheus to whom the great god Apollo gave a golden harp. "Every day he made soft music with his golden harp, and sang beautiful songs such as no one had ever heard before And whenever Orpheus sang, everything came to listen to him; the trees bowed down their heads to hear, even the clouds sailed along more gently and brightly in the sky when he sang, and the stream which ran close to his feet made a softer noise, to show how glad his music made it." This man is sometimes called the "Father of Poetry," because the songs that he sang to the music of his harp were the best songs that had ever been heard.

SONGS

1. Sally in Our Alley

Of all the girls that are so smart
There's none like pretty Sally;
She is the darling of my heart,
And she lives in our alley.
There is no lady in the land
Is half so sweet as Sally;
She is the darling of my heart,
And she lives in our alley.

Of all the days that's in the week
I dearly love but one day—
And that's the day that comes betwixt
A Saturday and Monday;
For then I'm drest all in my best
To walk abroad with Sally;
She is the darling of my heart,
And she lives in our alley.

When Christmas comes about again
O then I shall have money,
I'll hoard it up, and box it all,
I'll give it to my honey,
I would it were ten thousand pounds,
I'd give it all to Sally,
She is the darling of my heart,
And she lives in our alley .

Henry Carey

Note—Many poems have been set to music because they are truly songs "Sally in Our Alley," a simple love lyric, is full of music. The theme itself is musical, and music is also made by the smooth flow of the lines Many of the words, such as "darling," "heart," "smart," have open vowels suitable for singing; note, too, the liquid sound of the l in "Sally" and "alley."

"There is no lady in the land
Is half so sweet as Sally"

The children should repeat such words and lines as the above in a soft monotone, dwelling on them, but not singing. them. Notice that the last lines of every stanza are the same, and thus form a kind of refrain, which is characteristic of songs "One day" and "Monday" are unusual rhymes, and the grammar is faulty in—"Of all the days that's in the week."

Henry Carey is singing of a young man who had little money or education, whose sincere devotion to his beloved Sally has immortalised him Carey, who died in 1743, was also in his day a musician of note.

Which lines are repeated in every stanza? Where did Sally live? What is meant by "alley"? Which day did Sally's sweetheart love best? What did he do on that day? What was he going to do at Christmas time? Which lines do you like best? Do you like honey? Why is Sally called "my honey"? What is another word for "betwixt"? What is another word for "hoard"?

2. April Showers

The leaves are fresh after the rain,
The air is cool and clear,
The sun is shining warm again,
The sparrows hopping in the lane
Are brisk and full of cheer

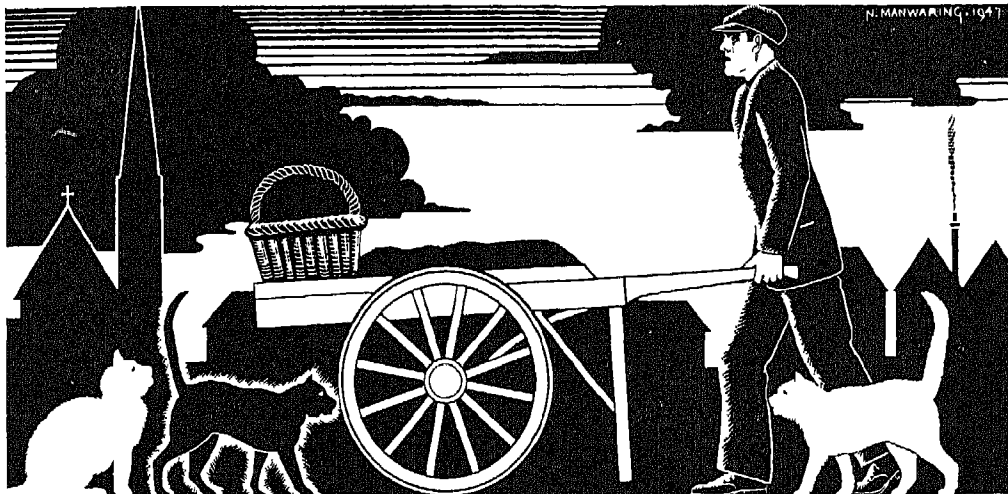
And that is why we dance and play,
And that is why we sing,
Calling out in voices gay,
We will not go to school to-day
Nor learn anything!

It is a happy thing, I say,
To be alive on such a day.

James Stephens.

Note.—This is a delightful little song with the freshness and gaiety of spring in it The short lines intensify the lively, frisking rhythm, and the sentiments of the children in the poem are in accordance with it. The word "brisk" is an example of onomatopoeia. Note how the sound of the word conveys the sense Note, too, in this poem the alliterative "cool and clear," and the repeated words, "And that is why" Mr James Stephens is a well-known writer of prose and poetry.

How are the sparrows described? Why are the leaves fresh? What is the sun doing? Play at hopping like a sparrow. How do the children feel? Why did they say that they would not go to school? Describe an April shower in which you have been caught.

RHYMES

Nursery rhymes are the folk-songs of poetry Many of them are very old. Children of long ago singing them at their games taught the rhymes to smaller brothers and sisters Mothers sang them to their babies They are the simple and sometimes crude expression of spontaneous feeling—laughter or sorrow, achievement or mishap—and like many primitive songs they often centre round birds and animals. Civilisation tends to separate man from nature. In very early days people and animals lived more on a level It is common to find in the rhymes conversation between man and creature—"Pussy cat, pussy cat, where have you been?"

There is no complexity of rhythm or great length of line in a simple rhyme The words are often onomatopoetic, as in "ding dong bell" and "hickory dickory dock," and there are usually examples of repetition

3. Cat's Meat

Ho, all you cats in all the street;
Look out, it is the hour of meat:

The little barrow is crawling along,
And the meat-boy growling his fleshy song.

Hurry, Ginger! Hurry, White!
Don't delay to court or fight

Wandering Tabby, vagrant Black,
Yamble from adventure back!

Slip across the shining street,
Meat! Meat! Meat! Meat!

Lift your tail and dip your feet;
Find your penny—Meat! Meat!

Where's your mistress? Learn to purr
Pennies emanate from her.

Be to her, for she is Fate,
Perfectly affectionate

(You, domestic Pinkie-Nose,
Keep inside and warm your toes)

Flurry, flurry in the street—
Meat! Meat! Meat! Meat!

Harold Monro.

Note.—This poem has a strong appeal for children The rhythm of the lines suggests the stalking cats. There are many onomatopoetic words. Let the children repeat "crawling," "growling," "yamble," "flurry,"

"purr." The first and second stanzas are slow-moving and should be spoken clearly, but the poem must be speeded up as its excitement grows Notice the alliteration in "slip across the shining street," and the repetition of the word "meat," which gives the impression of excitement increasing to frenzy. "Fate" and "affectionate" are awkward rhymes and must not be stressed. There is humour in the gently contemptuous reference to "Pinkie-Nose." Notice the author's knowledge of cats—"Lift your tail and dip your feet." Many of the words in the poem are striking and original. The meat-boy sings a "fleshy" song, the cats "yamble," pennies "emanate." They serve to portray a bold and realistic picture of the scene, quickly imagined and enjoyed by a child.

What does the meat-boy sing? Which words describe him walking down the street? What cats come upon the scene? What have they been doing? What must they do now? How can they persuade their mistresses to buy them some meat? Which pussy does not trouble about the meat-boy? What does "vagrant" mean? How do the cats look when they approach the barrow? Which stanza do you like best? Play at being the meat-boy. Make the sound of a cat purring.

4 Fan the Filly

Bumpety, bumpety, bump.
The horses run down the green hill.
There's Fan the wild filly again at her *tricks!*
She rears at the fence and she knocks down the sticks
To get at the hay at the base of the ricks.
Bumpety, bumpety, bump.

Bumpety, bumpety, bump
The horses run down the green hill
They're all of them wanting a share of the hay,
The Roan and the Dapple, the Black and the Bay,
They follow the filly and gallop away.
Bumpety, bumpety, bump.

Bumpety, bumpety, bump.
The horses run up the green hill.
For old Farmer Brown has come out with his man
To halter the mischievous filly called Fan,
And sell her for gold at the Fair if he can
Bumpety, bumpety, bump

Bumpety, bumpety, bump
The horses run up the green hill
But where there were five there are now only four,
For Fan the wild filly will gallop no more,
She stands in the shafts at a gentleman's door.
Bumpety, bumpety, bump

Wilfred Thorley

Note—This is not an old rhyme, but it resembles one. It has a refrain which can be said by the whole class while one boy or girl recites the verses. Stress the consonants in the refrain so as to bring out the resemblance between the words and their meanings. The poem has a galloping rhythm in it, which runs along like Fan the wild filly herself. A filly is a young female horse. Notice that the beginnings of the stanzas resemble one another, and should be recited with stressed accents to carry on the impression of "*Bumpety, bumpety, bump.*" This is the sound of the hoofs thudding down the green hill away from angry Farmer Brown There are many instances of alliteration which helps the galloping of the lines—

" the Black and the Bay,
They follow the filly and gallop away "

Of what does the rhythm of this poem remind you? Which lines are almost alike in every stanza? What is a filly? What does Fan do? What does Farmer Brown

do? Why will Fan gallop no more? Find words in the poem that describe the filly What is a "Fair"? What is "hay"? What is a "rick"? Draw a picture of the horses Play at being Fan (Two children play—one is Fan and the other is Farmer Brown. When in the playground let all the children run—"*Bumpety, bumpety, bump*")

5 The Muffin-Man

When the nursery corners are creepy dim,
And it isn't quite time for tea,
And the shadows and things are very grim,
And there's nobody there but me,
I wait in the window to hear his feet
Come clackety, clackety down the street,
And I love the sound of his ding-dong bell
And his "Muffins, O, Muffins, O, Muffins to sell"

He always comes in the wind or wet
Or the fog or the bitterest cold,
He's my greatest friend, though we haven't met,
And he's ever so big and old,
For the dark is a little bit lonely sad
When you've no one else and you wish you had,
And I think he knows, for he rings his bell
And shouts to me, "Muffins, O, Muffins to sell"

Madeleine Nightingale.

Note—A muffin-man's bell in the road sounds KLANG king king, DING dong dong, MUF-fins o! MUF-fins o! MUF-fins to SELL! Notice that the rhythm of this poem is the swinging of the bell. It is brought out again in "clackety, clackety down the street." This poem is made up of contrasts The first half of each stanza is wistful and quiet, and should be sharply contrasted with the ringing of the bell in the second half Let the pupil say the first four lines whisperingly and fearfully, gradually raising the voice to the last line, in which all the class join, stressing the rhythm to make the line sound like a bell ringing

What is a nursery? What is the nursery like before tea time? Which words describe the sound of the muffin-man's footsteps? What does the muffin-man call? What is a muffin? What kinds of weather has the muffin-man to face? Why did the little girl like to hear him ringing his bell? Why does she call him her greatest friend? What line describes the muffin-man? Play at being a muffin-man. Play at being the little girl. Which boy's name rhymes with dim? Which girl's name rhymes with bell?

6 Little April Fish

On April Day, on April Day,
There came to me from far away
A letter and a fish,
And somebody—I don't know who—
Wrote in the letter what to do,
And said if I would wish a wish
(And never lose my little fish)
Some evening when the moon was blue
It would come true

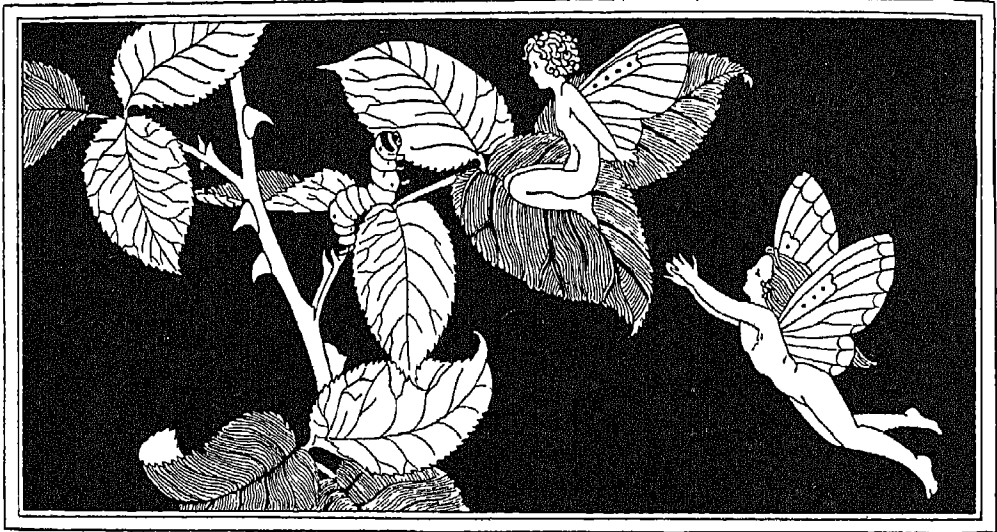
On April Day, on April Day,
All by myself I hid away
My letter and my fish.
I was so secret, no one knew
The funny things I had to do,
Nor what I wished for in my wish.
I haven't lost my little fish,
So if to-night the moon is blue
It will come true.

E Rendall.

Note—This poem has a pretty rhythm and rhyme scheme It is a child's song and the singing effect is accentuated by the

short lines It should be recited mysteriously and with suppressed excitement April Day is April Fools' Day, April 1st There is humour in this poem The author is laughing at the child in a gentle way. The teacher will probably find several pupils who do not discover the humour in the last two lines

What present was sent to the child? What was she told to do? Which lines say what she did on April Day? When would the wish come true? Why is the writer of the poem laughing at the child? What have you ever done on April Day? Why must you keep your wishes secret?

OF FAIRIES

Many forms have issued from Fairyland—brownies, elves, goblins, fays—and they range from tiny creatures in human shape that haunt the flowers, to beings of the ordinary size of men and women. Some are described as of extraordinary beauty, modern fairies in particular being generally represented as tiny, dainty creatures. Writers from Shakespeare downwards have entertained their fellow-men with songs and stories of intrigues among fairies themselves, and of the effects of their interference in human affairs The christening of the Sleeping Beauty was attended by many good fairies, who gifted her with excellences physical and moral. Their good work was almost undone by the jealous bad fairy, who sought to call down untimely death upon the maiden's fair head, a sentence commuted to sleep for a hundred years (See Vol VI, p 80) Cinderella's fairy godmother assisted the ill-used and neglected step-daughter, so that she eventually became the bride of a prince Rumpelstiltskin industriously spun flax into gold out of pity for a lady in distress, but was shrewd enough to drive a bargain with her for his pains. An old tract says of Puck or Robin Goodfellow—

> "Thou hast the power to change thy shape
> To horse, to hog, to dog, to ape"

Ariel was the dainty servant of a very clever man Santa Claus himself is a kind of Christmas fairy, confining his good deeds to children Fairy stories in prose and poetry enrich the literature of many peoples, and paintings of these fascinating beings

take their places among the world's works of art. "This sportive, beneficent, invisible population of the air and earth" has been long established in the creed of childhood. Of the fairy poems in this book, the first two are written by Miss Rose Fyleman, a modern poetess with a delicate appreciation of the "little people."

7. A Fairy Went A-Marketing

A fairy went a-marketing—
She bought a little fish;
She put it in a crystal bowl
Upon a golden dish.
An hour she sat in wonderment
And watched its silver gleam,
And then she gently took it up
And slipped it in a stream

A fairy went a-marketing—
She bought a coloured bird;
It sang the sweetest, shrillest song
That ever she had heard.
She sat beside its painted cage
And listened half the day,
And then she opened wide the door
And let it fly away

A fairy went a-marketing—
She bought a winter gown
All stitched about with gossamer
And lined with thistledown.
She wore it all the afternoon
With prancing and delight,
Then gave it to a little frog
To keep him warm at night

A fairy went a-marketing—
She bought a gentle mouse
To take her tiny messages,
To keep her tiny house
All day she kept its busy feet
Pit-patting to and fro
And then she kissed its silken ears,
Thanked it, and let it go

Rose Fyleman.

Note—This pretty poem teaches children to be kind to little creatures. The fish, the bird, the frog and the mouse gave the fairy joy, and in return she showed them kindness. The tender words illustrate the gentleness of the fairy—

"She gently took it up
And slipped it in a stream"
"And then she kissed its silken ears."

Draw the pupils' attention to the colour in the pictures of the fish and bird—

"She put it in a crystal bowl
Upon a golden dish . . .
And watched its silver gleam"

"She bought a coloured bird .
She sat beside its painted cage"

The third stanza emphasises the fragile, dainty figure of the fairy, adorned with gossamer and thistledown. Only the most delicate of creatures could array itself in cloth so fine as to be "stitched about" with the flimsy thread of the spider The fairy delighted in her new gown, but gave it away because she could not bear to see a frog cold. The last stanza is a charming conception of a gentle mouse with silken ears and "busy feet pit-patting to and fro" The repetition of "tiny" intensifies the smallness of the fairy Let the pupils softly repeat "sweetest, shrillest song," to imitate the music of a bird.

How do you know that the fairy was very kind? What did she buy at the market? Which words in the poem suggest colour? Which line tells you that the fairy was very small? What is gossamer? How do you know that the fairy liked her new gown? Why did she buy a mouse? Draw a picture of the mouse running errands for the fairy. Which words describe the bird's song? Which word in the fourth stanza sounds exactly what it means? What do we learn from the fairy? (Several children can play

at marketing. One can be the fairy and others can pretend to sell the things the fairy bought)

8. Fairies by the Sea

Crowds of them and crowds of them
All among the tide,
On big waves and little waves
Having such a ride!
Creeping up the crinkly sand,
Dancing on the rocks,
Crowds of them and crowds of them
In creamy curly frocks

Rows of them and rows of them—
Fifty thousand score,
Glittering and twinkling
All along the shore,
Sands to dig I knew there were,
Shrimps to catch for tea,
No one told me I should find
Fairies by the sea

Rose Fyleman

Note—This poem has a light, dancing rhythm, suggestive of the splash of wave on pebble. The tiny fingers of foam that play upon the sand, the froth around rocks, and the tumbling crests of waves are not "white horses" but fairies "in creamy, curly frocks" This poem lends itself admirably to recitation "Crowds of them" should be spoken softly at first and more emphatically afterwards The repetition intensifies the effect. Let the pupils repeat the pretty line, "Creeping up the crinkly sand," so as to catch its music Notice also the alliteration in the last line of the first stanza—"creamy curly frocks." The little child in the poem finds the seaside even lovelier than she expected, for not only were there sands and shrimps but also twinkling fairies—"Fifty thousand score"

Where are fairies found by the sea? Describe the fairies How many are there? What do children do at the seaside? Write all the words beginning with *cr.* Tell of anything that you know is crinkly Tell of anything that glitters Tell of anything that twinkles (There are illustrations of a shrimp and a shrimp catcher on page 215.)

9 The Light-Hearted Fairy

Oh, who is so merry, so merry, heigh-ho!
As the light-hearted fairy? heigh-ho!
Heigh-ho!
He dances and sings
To the sound of his wings,
With a hey, and a heigh, and a ho!

Oh, who is so merry, so airy, heigh-ho!
As the light-hearted fairy? heigh-ho!
Heigh-ho!
His nectar he sips
From the primrose's lips,
With a hey, and a heigh, and a ho!

Oh, who is so merry, so merry, heigh-ho!
As the light-footed fairy? heigh-ho!
Heigh-ho!
The night is his noon,
And his sun is the moon,
With a hey, and a heigh, and a ho!

Anon

Note—This is a merry poem with a dancing rhythm. The gaiety is enhanced by

the short lines and alliterative refrains, suitable for singing This fairy takes his pleasures at night, for—

> " The night is his noon,
> And his sun is the moon."

Notice the example of personification, a figure of rhetoric which ascribes life to inanimate things The primrose becomes a maiden with honeyed lips.

What makes this poem sound gay? Write out the refrain of the poem How do you know that the fairy danced at night? What does he sip? What is the taste of nectar? What music does he hear? Which words suggest gaiety in the poem? Repeat daintily the words "airy," "fairy," "merry." (There is an illustration of the primrose on page 215.)

10. Very Nearly!

> I never *quite* saw fairy-folk
> A-dancing in the glade,
> Where, just beyond the hollow oak,
> Their broad green rings are laid;
> But, while behind that oak I hid,
> *One day I very nearly did!*
>
> I never *quite* saw mermaids rise
> Above the twilight sea,
> When sands, left wet, 'neath sunset skies,
> Are blushing rosily:
> But—all alone, those rocks amid—
> *One day I very nearly did!*
>
> I never *quite* saw Goblin Grim,
> Who haunts our lumber room
> And pops his head above the rim
> Of that oak chest's deep gloom
> But once—when Mother raised the lid—
> *I very, very nearly did!*
>
> *Queenie Scott-Hopper.*

Note.—There is a distinct and separate picture for the imagination in each stanza of this poem. The first is of fairies in a woodland glade; the second of mermaids, twilight seas and beautiful sunsets, the third of Goblins that haunt the dark rooms of childish memories. The first stanza, describing fairies in the glade, should be said in a light, dancing tone of voice.

"The fairies are exquisite dancers," says Sir James Barrie. "They hold their great balls in the open air, in what is called a fairy ring For weeks afterwards you can see the ring on the grass. It is not there when they begin, but they make it by waltzing round and round. Sometimes you will find mushrooms inside the ring, and these are fairy chairs that the servants have forgotten to clear away. The chairs and the rings are the only tell-tale marks these little people leave behind them, and they would remove even these were they not so fond of dancing that they toe it till the very moment of the opening of the gates."

The second stanza should be spoken more slowly than the first, because mermaids are not so sprightly as fairies

"Sands, left wet, 'neath sunset skies," is a line to linger over. Note the alliterative *s*

Goblin Grim and the "deep gloom" of the last stanza suggest a low, mysterious rendering This Goblin Grim is Puck or Robin Goodfellow appearing again, full of wiles to frighten the simple. He is waiting to pop up his head with a frightful grimace out of the oak chest in the ghostly lumber room, and terrify a small child The child lives in the world of imagination and its goblins are more real than his own brothers and sisters

Where do fairies dance? What is a glade? What is a fairy ring? Name six words that rhyme with glade. How would you know a mermaid if you really saw one? What effect has the sunset on the sands? Where does Goblin Grim live? What does he do? What were the things that the little child very nearly saw? (Some children can play at dancing like the fairies in a ring while others peep on them from behind a chair which serves as an oak.)

OF PEOPLE

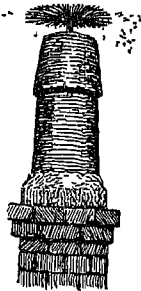
11. "Sooeep"

Black as a chimney is his face,
And ivory white his teeth,
And in his brass-bound cart he rides,
The chestnut blooms beneath.

"Sooeep, Sooeep!" he cries, and brightly peers
This way and that, to see
With his two light-blue shining eyes
What custom there may be.

And once inside the house, he'll squat,
And drive his rods on high,
Till twirls his sudden sooty brush
Against the morning sky.

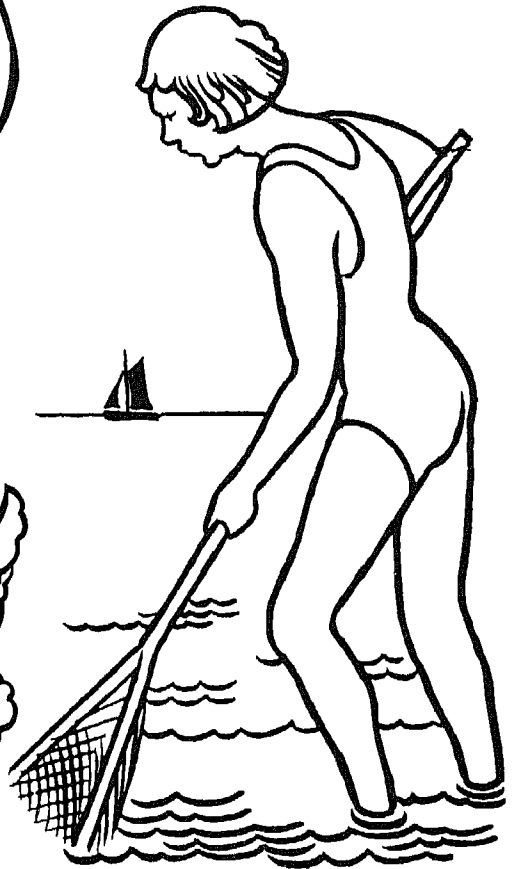
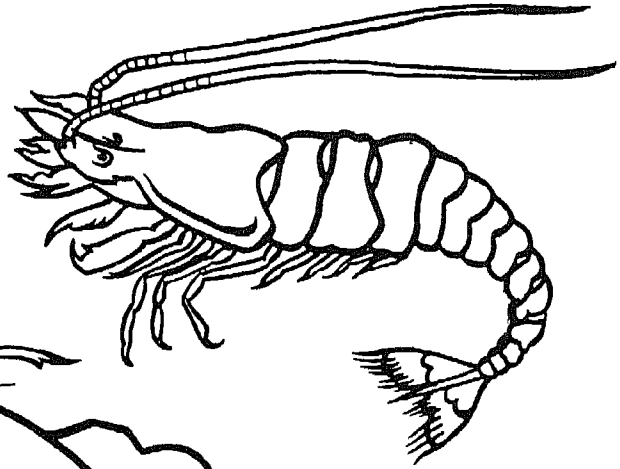
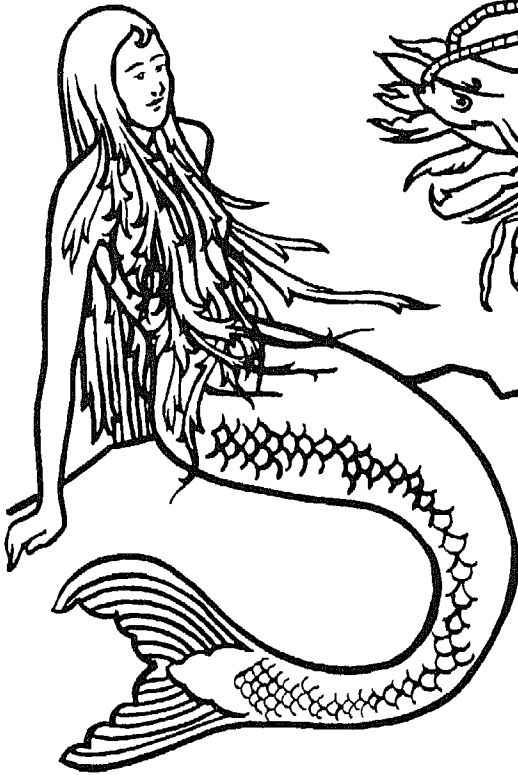
Then 'mid his bulging bags of soot,
With half the world asleep,
His small cart wheels him off again,
Still hoarsely bawling,
"Sooeep!"

Walter de la Mare

Note—Mr. de la Mare's poetry is full of clever word painting with plenty of colour. His "Sooeep" has a black face, white teeth and light-blue shining eyes He rides in a "brass-bound cart" and "brightly peers this way and that." In the third stanza are some onomatopoetic words, which express their meanings by their sounds

> "He'll *squat*,
> And *drive* his rods on high,
> Till *twirls* his sudden sooty brush."

Let the pupils repeat "sudden sooty brush" and "bulging bags," and try to find out for themselves that the alliteration adds boldness to the picture Note the simile used to describe the "Sooeep's" face Note, too, the use of the word "sudden" Probably some children will have watched a chimney from the outside, waiting for the sudden appearance of the sweep's broom

Which lines describe the "Sooeep"? At what season of the year do chestnut trees bloom? Which lines tell us that the "Sooeep" is at work very early in the day? What

SKETCHES FOR THE BLACKBOARD

MERMAID (VERY NEARLY)
PRIMROSE (THE LIGHT-HEARTED FAIRY)

SHRIMP (FAIRIES BY THE SEA)
SHRIMPING (FAIRIES BY THE SEA)

colours would you want to paint a picture of him in his cart? What words describe his brush and bags of soot? Which line describes his voice? Where have you seen the "Sooeep"? What are *bulging* bags?

12. Tired Tim

Poor tired Tim! It's sad for him.
He lags the long bright morning through,
Ever so tired of nothing to do;
He moons and mopes the livelong day,
Nothing to think about, nothing to say;
Up to bed with his candle to creep,
Too tired to yawn, too tired to sleep.
Poor tired Tim! It's sad for him.

Walter de la Mare.

Note—In this short poem the rhythm gives the impression of weariness. There are no short lines to break the monotony of the long ones. The poem should be recited slowly and some of the words drawled Tired Tim "lags" and "moons" and "mopes" and "creeps" The poet is mildly sarcastic when he pretends to be sorry for Tim, for he is really laughing at him. The repetition of "nothing" emphasises the emptiness of Tim's existence.

Why is Tim so tired? What does he do all day? What does he do at night? What is he too tired to do? How does this poem make you feel? What causes this feeling? Write down the sleepiest line of all.

13 Danny Murphy

He was as old as old could be,
His little eye could scarcely see,
His mouth was sunken in between
His nose and chin, and he was lean
And twisted up and withered quite,
So that he couldn't walk aright.

His pipe was always going out,
And then he'd have to search about
In all his pockets, and he'd mow
—O, deary me! and, musha now!—
And then he'd light his pipe, and then
He'd let it go clean out again.

He couldn't dance or jump or run,
Or ever have a bit of fun
Like me and Susan, when we shout
And jump and throw ourselves about·
—But when he laughed, then you could see
He was as young as young could be!

James Stephens

Note.—"Danny Murphy" is the portrait of a gentle old man almost blind There is suggested comparison with a decayed tree in the line "Twisted up and withered quite."

Danny is Irish by name so his exclamations are Irish, and because he is so old his words should be "mowed"—mouthed or muttered—quaveringly Notice that the poet describes his appearance first, then his most noticeable habit, and lastly the rare, vital part of him which peeps out occasionally like the sun from behind a cloud. Danny's laugh is as natural and infectious as a child's. Mr. James Stephens has painted an appealing figure in these three short stanzas.

How do we know that Danny was very old? What was his chief trouble? What did he say? Why could he never "have a bit of fun"? Describe Danny's laugh. Why do we love this old man? What other words will rhyme with mow? (This poem would serve as a useful example of a simple rhyme scheme—*a, a, b, b; c, c*)

14 Pedlar Jim

A dusty road is mine to tread,
From grey of dawn to sunset red,
And slow my pace because, alack!
I've all my wealth upon my back

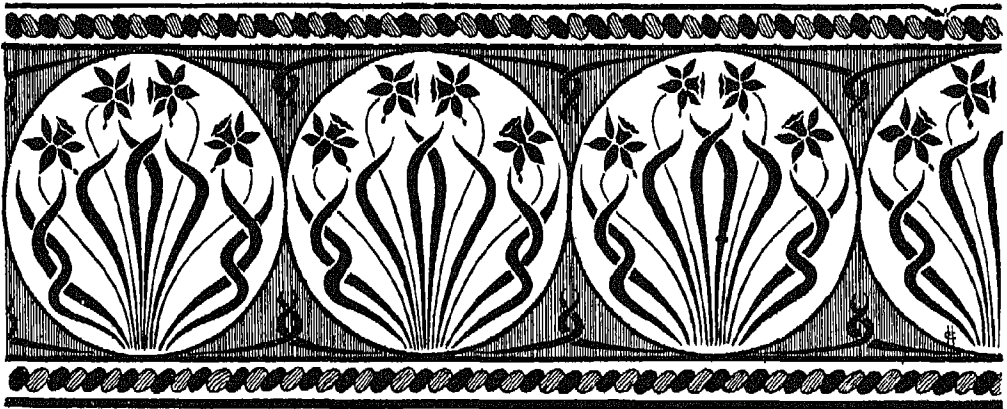
'Tis honest toil for homely fare,
A penny here, a sixpence there,
Or maybe, on my lucky days,
A seat beside the goodwife's blaze.

With fairy tales and legends gay
I cheer the lasses when I may,
And oft the little children cry,
"Be sure you call as you pass by."

Florence Hoare.

Note—The poem of "Pedlar Jim" is slow-moving because Jim, like a snail, goes heavily laden. There are no short lines to hasten the rhythm or relieve the monotony of the pedlar's daily plodding from village to village A pedlar is a travelling vendor of small wares usually carried in a pack The words in this poem are simple and fitting for an honest, plain man. Notice the expressions characteristic of country people — "lasses," "goodwife's blaze," "homely fare" We have here a humble, contented character, satisfied to gain a little here and there for his living, and welcomed by the women and children for his friendly gossip and stories Poets reveal to us many of the hiding-places of beauty, for they perceive it in insignificant persons and objects that we ourselves unseeing should have passed by

Why does the pedlar walk slowly? Where does he like to sit? Why do the girls and boys like him to call? What might he carry in his pack? What does he charge for his wares? Which lines tell of his weary journeys? What kind of man do you think the pedlar is? When does he begin his travels every day? When does he end his travels every day? What is another name for "lasses"? What is another word for "blaze"?

FLOWERS AND BIRDS

Many sweet songs have been sung about Nature, and every poet loves and studies her; for a poet is one who·

" Wantons with the February winds,
And toys with March's forward daffodils,
He is an April fool each cuckoo-call
Can set a-gaping, and he falls in love
With every lamb that frisks its pretty tail."

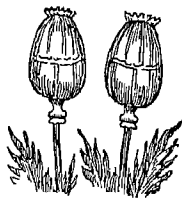
As an introduction to one of the poetry lessons in this section it might be helpful to tell in a few words the story of Narcissus. The Greeks believed that some of the flowers and trees were once human beings. The sweet-scented narcissus is said to have been a beautiful youth, whom the gods changed into this delicate flower. Narcissus was loved by a nymph called Echo, for whom he did not care. Because of his indifference, Echo grieved and died, and the gods deter-

mined to punish Narcissus by causing him to fall in love with his own reflection. When Narcissus caught sight of his face mirrored in a clear pool, he thought it was the face of a lovely maiden, whom he besought to leave her watery home and dwell with him In every sheet of water he saw, as he thought, the same fair lady, and his fruitless love for her made him pine away. At length one evening, when he was leaning over the rocks by the riverside and pleading in a faint voice, the gods took pity on him. He vanished, and in his stead was found growing a clump of white flowers with rushlike leaves Ever since then, this flower has been called a narcissus, in memory of the handsome youth

15. Poppies

The poppies in the garden, they all wear frocks of silk,
Some are purple, some are pink, and others white as milk,
Light, light for dancing in—for dancing when the breeze
Plays a little two-step for the blossoms and the bees'
Fine, fine for dancing—all frilly at the hem
Oh! when I watch the poppies dance I long to dance like them

The poppies in the garden have let their silk frocks fall
All about the border paths, but where are they at all?
Here a frill, and there a flounce—a rag of silky red,
But not a poppy-girl is left, I think they've gone to bed,
Gone to bed and gone to sleep and weary they must be,
For each has left her box of dreams up on the stem for me

ffrida Wolfe

Note—Stories of flowers have been told both in prose and verse. Two in this section were written by Mrs ffrida Wolfe, and children will enjoy them both. The first is about poppies in a garden The poppies in the poem are not flowers but sprightly maidens dancing a two-step with the bees to the light music of the wind They are dressed in pretty frocks—

> "All frilly at the hem .
> Here a frill and there a flounce."

Some flaunt purple, some pink, and others wear dresses "white as milk" (They are Shirley poppies, not the ordinary red variety) When they are tired of dancing, the poppy-maidens shed their frocks and go off to bed, leaving "boxes of dreams" behind The rhythm of the poem dances like the music of the breeze, and the repetition—

> "Light, light for dancing in,"
> "Fine, fine for dancing "

intensifies the effect. Notice the repetition again in the second stanza to accentuate the departure of the poppy-girls—

> "Gone to bed;
> Gone to bed and gone to sleep—."

From the seeds of the "boxes of dreams" a chemist can distil a juice called opium which induces sleep and dreams This poem is specially suited for recitation in early summer when poppies are easily obtained.

What are the poppies in the poem supposed to be? What colours would you want from your paint box to paint them? Which lines describe the poppy frocks? What is the breeze doing? What kind of music do the lines of poetry make? What are the poppies doing? What happens when they are tired? What is a "box of dreams"? Why is it called by this name?

16 The Bee and The Flower

The bee buzz'd up in the heat,
"I am faint for your honey, my sweet"
The flower said, "Take it, my dear,
For now is the spring of the year.
So come, come!"
"Hum!"
And the bee buzz'd down from the heat.

And the bee buzz'd up in the cold
When the flower was wither'd and old,
"Have you still any honey, my dear?"
She said, "It's the fall of the year,
But come, come!"
"Hum!"
And the bee buzz'd off in the cold.

Lord Tennyson

Note—Lord Tennyson, a great lover of Nature, has many exquisite word pictures of flowers and the countryside in his poems (See the section of Tennyson's poems beginning on page 236.) The "Bee and the Flower" is a tiny song full of the humming of the bee Notice the onomatopoetic words—

" So come, come!'
'Hum!'
And the bee buzz'd down from the heat"

Let the pupils softly practise "Hum," dwelling on the last letter to imitate the buzzing of the bee. The fall of the year is autumn. The introduction of conversations between the bee and the flower gives interest to the poem

Which lines in this poem sound like the humming of bees? What does the bee say to the flower in the first stanza? What does she answer? What was the flower like when the weather turned cold? What did the bee say in the second stanza? What did the flower answer? Why did the bee buzz off in the cold at the end of the poem? When is the fall of the year? Where does the bee live during the winter?

17. Four and Eight

The Foxglove by the cottage door
Looks down on Joe, and Joe is Four.

The Foxglove by the garden gate
Looks down on Joan, and Joan is Eight

"I'm glad we're small," said Joan, "I love
To see inside the fox's glove,
Where taller people cannot see,
And all is ready for the bee,
The door is wide, the feast is spread,
The walls are dotted rosy red."
"And only little people know
How nice it looks in there," said Joe.
Said Joan, "The upper rooms are locked
A bee went buzzing up—he knocked,
But no one let him in, so then
He bumbled gaily down again."

"Oh, dear!" sighed Joe, "if only we
Could grow as little as that bee,
We too might room by room explore
The Foxglove by the cottage door"

The Foxglove by the garden gate
Looked down and smiled on Four and Eight

ffrida Wolfe.

Note—This is another pretty flower study by Mrs. ffrida Wolfe, the theme in this poem being foxgloves. Joe is four years old and

stands nearly as high as the foxglove by the cottage door Joan who is eight, cannot see over the foxglove by the garden gate. To the children, the foxglove spires are mansions containing many chambers In the lower storeys every room has been made ready for a visiting bee:

> "The door is wide, the feast is spread,
> The walls are dotted rosy red."

The upper rooms, however, are locked—

> "A bee went buzzing up—he knocked,
> But no one let him in, so then
> He bumbled gaily down again."

Foxgloves are plants with tall stems having many flowers on each stem. Each flower is similar in shape to one finger of a glove, and is usually spotted with red The poem can be recited naturally and effectively by three children taking the parts of narrator, Joan and Joe. This is another poem to take in early summer when foxgloves can be readily obtained.

Describe a foxglove. Why were Joan and Joe glad that they were small? What did they think the foxglove flowers were? Describe what they saw in the flowers Why did the bee "bumble gaily down"? What did Joe wish? Which words rhyme with "glove," "bee," "locked"? Reference might be made to the incident in *Alice in Wonderland* where Alice became very small

18. The Throstle

> "Summer is coming, summer is coming.
> I know it, I know it, I know it.
> Light again, leaf again, life again, love again "
> Yes, my wild little Poet.
>
> Sing the new year in under the blue.
> Last year you sang it as gladly.
> "New, new, new, new!" Is it then *so* new
> That you should carol so madly?
>
> "Love again, song again, nest again, young again,"
> Never a prophet so crazy!
> And hardly a daisy as yet, little friend,
> See, there is hardly a daisy
>
> "Here again, here, here, here, happy year!"
> O warble unchidden, unbidden!
> Summer is coming, is coming, my dear,
> And all the winters are hidden.

Lord Tennyson.

Note—Many English birds make beautiful music. The skylark, the song thrush, the blackbird and the nightingale are especially famous singers, and their songs have been the inspiration of many poems A story is told of some rough English diggers working on the goldfields in Australia. The hardships that they had endured had made rude men of them. They had long forgotten their parents and their English homes, and were consumed with greed for the gold to find which they toiled unceasingly and over which they quarrelled and fought. One day two or three diggers announced that they were going to see a lark, and invited others to join them.

"What are they after?" said one man to his friend, hesitating over the invitation.

"Can't say. Let's go and see"

So the little party set out. They walked for seven or eight miles through terrible heat until they came to a rough farm with two barns by it and a fence around

"This is the place," said the leader.

They went through the gate into the yard, and there saw fifteen or twenty other diggers lolling about in different attitudes of patient expectation. While they waited, a thin little woman came out of the house, carrying in her hands a covered wire cage containing a small brown bird. The diggers moved forward and clustered round her.

"What are they looking at?" said the man who had spoken first

"At the lark," answered his friend.

"Lark? What lark? I can see only a bird," was the reply

"Well, and isn't a lark a bird?"

"What, have we come all these miles in the sun just to see a bird?"

"Stow your noise," interrupted a digger, gruffly "He's going to sing"

The woman had set the cage on a table and removed the cloth from it. After a little fluttering and an uncertain note or two, as if trying to recall a tune, the tiny occupant of the cage burst into full-throated song. He sang of the sweet English spring, of green fields and blue skies, of his mate upon her nest in the wheatfield, of love and joy and happiness and all the beautiful things of heaven and earth

While the lark sang, the gold diggers stood silent and enthralled, and before he had ended, the tears were rolling down some rugged cheeks These rough men were living over again days long forgotten, when as fair-headed boys they had roamed the daisied meadows of England and played innocent games to the piping of a thousand songsters.

When the little musician quavered, fluttered, sank his rapturous trills to a few soft notes and finally lapsed into silence, the diggers broke into hoarse exclamations of wonder and delight. They pressed upon the woman, offering her gold in return for her bird She knew what it cost them to part with their hard-won treasure, and flushed gratefully at their eagerness, but shook her head

"I am only a poor woman," she said. "Do not tempt me with so much money, for I cannot bear to part with him Six larks were sent to me from England, and five died on the passage out. You are welcome to come and hear his song when you please, but I will never sell him."

Such was the charm of the lark's song in a land where sweet bird-voices are very scarce

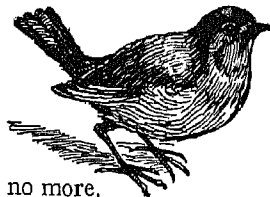
"The Throstle," by Lord Tennyson, is the interpretation of a thrush's song, and is full of bird music The song is found in the lines between inverted commas The other lines are the poet's comments. He calls the bird "little friend," "wild little Poet," and, because the throstle has forgotten the winter and is full of the joy of life, "crazy prophet." Although his song is uninvited it is none the less welcome. Much of the music of the poem is made by the frequent repetition of words and phrases There are a few difficult words in the poem—"prophet," "crazy," "unchidden," "carol," "warble." These words may be explained but it is not really necessary to do so, for the children will be able to enjoy and appreciate the poem when they hear it recited, and learn to recite it themselves, in such a way as to imitate, as far as may be, the song of the thrush

19. Gay Robin

Gay Robin is seen no more:
He is gone with the snow,
For winter is o'er
And Robin will go.

In need he was fed, and now he is fled
Away to his secret nest.
No more will he stand
Begging for crumbs,
No longer he comes
Beseeching our hand
And showing his breast
At window and door:—
Gay Robin is seen no more

Blithe Robin is heard no more:
He gave us his song
When summer was o'er
And winter was long:
He sang for his bread, and now he is fled
Away to his secret nest
And there in the green
Early and late
Alone to his mate
He pipeth unseen
And swelleth his
breast;
For us it is o'er —
Blithe Robin is heard no more.

Robert Bridges

Note—Dr. Robert Bridges, the late Poet Laureate, was educated at Eton and Oxford and afterwards studied medicine at St Bartholomew's Hospital, London He held posts at the Children's Hospital, Great Ormond Street, and at the Great Northern Hospital, but retired from the medical profession at the age of thirty-eight and devoted himself to poetry It was long before his genius was generally recognised, for his work was original and distinctive His standards of workmanship were high and lovers of good work have accepted him as "the most scholarly, most classical and most artistic of modern poets" He became Poet Laureate in 1913 and died in 1930 His study of "Gay Robin" is very different from Tennyson's "Throstle" The actual song of the bird is imitated in the poetry of Tennyson, but here, "Gay Robin is seen no more" He has gone away to "his secret nest," and the poet's tender memory describes the bird's winter visits to "window and door" This poem reveals a writer who has watched and loved "blithe Robin," shown him kindness, and observed his tameness, his pretty "pipe" and coloured breast The short lines of poetry suit the bright, quick bird. The long lines of the stanzas feelingly express sorrow at the bird's departure.

What colours would you choose with which to paint a robin? Where is Robin gone? What did he do in the winter? What is he doing now in spring and summer? What does "pipeth" mean? Find a word in the poem meaning the same as "gay." Why is the robin called "gay"? Which lines suggest sadness? Why is the robin's nest called "secret"? Tell all you know about a robin

20. Robin Redbreast

Good-bye, good-bye to Summer!
For Summer's nearly done,
The garden smiling faintly,
Cool breezes in the sun,
Our thrushes now are silent,
Our swallows flown away,—
But Robin's here in coat of brown,
With ruddy breast-knot gay
Robin, Robin Redbreast,
O Robin dear!
Robin singing sweetly
In the falling year

Bright yellow, red, and orange,
The leaves come down in hosts,
The trees are Indian Princes,
But soon they'll turn to Ghosts,
The scanty pears and apples
Hang russet on the bough,
It's Autumn, Autumn, Autumn late,
'Twill soon be Winter now
Robin, Robin Redbreast,
O Robin dear!
And welladay! my Robin,
For pinching times are near

The fireside for the Cricket,
The wheatsack for the Mouse,
When trembling night-winds whistle
And moan all round the house,
The frosty ways like iron,
The branches plumed with snow,—
Alas! in Winter, dead and dark,
Where can poor Robin go?
Robin, Robin Redbreast,
O Robin dear!
And a crumb of bread for Robin,
His little heart to cheer.

William Allingham.

Note—There are many pleasing pictures in "Robin Redbreast," some of which the pupils will like to draw. The first is of the garden, represented as a person "smiling faintly" because the vivid heat of the sun is now tempered by "cool breezes," and the cheery voices of the thrushes and swallows are silent. Breaking the silence comes the robin's sweet song—

SKETCHES FOR THE BLACKBOARD

Swallow (Robin Redbreast)
Bee and Foxglove (Four and Eight)

Cricket (Robin Redbreast)
Indian Prince (Robin Redbreast)

"Robin, Robin Redbreast,
O Robin dear!
Robin singing sweetly
In the falling year."

Robin is pictured as a gentleman in a brown suit with gay, red tie. The trees have become Indian Princes in their brightly coloured robes, and will turn to thin grey ghosts when the leaves have fallen. Repetition—"It's Autumn, Autumn, Autumn late"—intensifies the sad foreboding and makes a wail in the music. The last stanza is a picture of winter, with—

"The frosty ways like iron,
The branches plumed with snow."

The music of the wind runs through the lines—

"When trembling night-winds whistle
And moan all round the house."

A cricket is a jumping, chirping insect, something like a grasshopper. One kind infests kitchens and fireplaces, and, though harmless, annoys people by its incessant chirping. The harvest mouse lives mainly on wheat. It is tinier than the house mouse, and is the only British animal with a prehensile tail. It builds a round nest between the corn stalks. (There are blackboard sketches of a cricket and an Indian Prince on page 223.)

What season of the year does the first stanza describe? What are the signs by which you know it? Where have the swallows gone? Why are the trees described as Indian Princes? When are the trees like ghosts? Name all the colours mentioned in the poem Which lines sound like the song of the winter wind? Write down two lines which describe winter What does Robin sing? What are "pinching times"? Where does the Cricket hide? Where does the Mouse live? Supposing you were going to draw a picture of this poem, what would you put in it? Which words in this poem rhyme with "dear"?

STORIES

King Arthur.—Before the invention of printing, stories and legends were handed on by word of mouth. They were sung by wandering minstrels, or narrated in verse form in war camps and at home round the fire in the evening twilight. Such stories

put into poetry are called ballads. Some of the best-known of British legendary stories are the tales of King Arthur. The following legend may be told as an introduction to a poetry lesson in this section.

Arthur was the son of Uther Pendragon, king of Britain many years after the Romans had left the country. Merlin the Wizard helped Uther to win the favour of the lady who became his Queen, and in return their son Arthur was given to Merlin to bring up. Soon afterwards Uther died, and the country was overridden by lawless nobles who would have murdered Arthur had they known of his existence Merlin placed the baby as a stranger in the family of a knight named Sir Hector who brought him up with his own son Kay.

Some years later, when Arthur had become a young man, Merlin advised the archbishop of Britain to call all the nobles together and hold a service in the abbey at Westminster on Christmas Day, "to pray heaven for peace and deliverance from ruin." On leaving the abbey after the service the nobles saw an anvil set on a great stone, and wedged in the anvil, as though driven in by a giant, was a strong sword. Pressing around to see this marvel more closely, they found written on the stone—"Whoso can draw forth this sword is rightful king of Britain born" All the nobles tried in turn without success to wrench the sword from the anvil, and they stood there glowering fiercely upon each other and muttering in jealous apprehension. Finally the archbishop suggested that a great tournament should be held at Eastertide, and then once again all might tug at the sword for the crown of Britain.

Easter approached, and Sir Hector, Sir Kay and Arthur, now a young man, fair and of noble proportions, set out on horseback from home to take their parts in the tournament at Westminster. They had gone some distance and were nearing the field of their destination when Sir Kay discovered to his intense mortification that he had accidentally left his sword behind. Arthur immediately offered to return and fetch it. He hurried back, but found the house deserted, bolted and barred Everyone had gone to see the tournament Pausing silent and troubled, Arthur suddenly remembered the story he had heard of a sword in an anvil at a field near Westminster, and he decided to try and obtain the blade for his foster brother. Unseen of any, he found the anvil in the field, and without staying to read the inscription on the stone, seized the sword and gave it a pull Immediately it came out in his hand.

Full of joy that he had found a sword for Sir Kay, Arthur galloped away and overtook Sir Hector and his son before they had arrived at the jousting field. Laughingly he handed Sir Kay the sword. Sir Kay took it with expressions of gratitude, then started and stared at the sword, and the fresh pink of his face changed to white. He asked Arthur how he had come by it, and Arthur told him. "O father!" cried Sir Kay, showing him the sword, "am I to be king of Britain?" In serious tones Sir Hector asked to be told the whole story, and when he had heard it, dismounted and bade his son do likewise. Then both paid homage to Arthur. In course of time the other nobles of Britain also acknowledged Arthur as their king and he was crowned by the archbishop.

21. The Babes in the Wood

My dear, do you know
How a long time ago,
Two poor little children
Whose names I don't know,
Were stolen away
On a fine summer's day,
And left in a wood,
As I've heard people say,

And when it was night,
So sad was their plight,
The sun it went down
And the moon gave no light!

They sobbed and they sighed
And they bitterly cried,
And the poor little things,
They lay down and died

And when they were dead,
The robins so red
Brought strawberry leaves,
And over them spread,
And all the day long
They sang them this song—
"Poor babes in the wood!
Poor babes in the wood!
And don't you remember
The babes in the wood?"

Note —Another very old ballad is called "The Babes in the Wood." The story is sad but interesting The unfortunate Babes inherited rich property, and their uncle, the next of kin, hired men to take them into a wood and murder them. In the wood the ruffians quarrelled as to whether they should kill the children or not, but finally went off and left them to die of starvation. The old ballad is told shortly in the poem given above in this section. Notice the narrative style of writing—"My dear, do you know? . . ."

The first stanza should be recited in a conversational tone The second begins softly, becomes agitated where—

"They sobbed and they sighed
And they bitterly cried"—

and ends softly and slowly The alliteration, "sobbed and sighed," intensifies the sound and meaning. The robin's song is made imitative and musical by repetition.

What happened to the babes? What frightened them? Why did they die? What song did the robins sing to them? What work did the robins do? Name several words which rhyme with "night."

22 Five Little Brothers

Five little brothers set out together
To journey the live-long day,
In an odd little carriage, all made of leather,
They hurried away, away—
One big brother and three quite small,
And one wee fellow, no size at all.

The carriage was dark and none too roomy,
And they could not move about;
The five little brothers grew very gloomy,
And the wee one began to pout,
Till the biggest one whispered. "What do you say?
Let's leave the carriage and run away."

So out they scampered, the five together,
And off and away they sped.
When somebody found the carriage of leather,
Oh, my! how she shook her head!
'Twas her little boy's shoe, as everyone knows,
And the five little brothers were five little toes!

Ella Wheeler Wilcox

Note.—When baby's feet are being dried after his bath, his mother takes each toe in turn and sets him chuckling with—

"This little pig went to market,
This little pig stayed at home,
This little pig had roast beef,
This little pig had none,
This little pig cried, 'Wee, wee!' all the way home."

The poem of "Five Little Brothers" is somewhat suggestive of this old nursery rhyme. It is a pretty story, prettily told, and appeals to children. The rhythm seems to patter along, assisted by the descriptive words—

They hurried away, away—
—Out they scampered, the five together "

The word "little" often repeated makes the brothers seem very tiny. The poem lends itself effectively to recitation because it is dramatic. It is a favourite with children.

Describe the five little brothers. Of what material was their carriage made? Why did they grow restless? What did the big brother whisper? Who found the leather carriage? Why did she shake her head? Draw the little carriage. Which word rhymes with leather? Find two words in the poem which should be said quickly. Which word is repeated many times? Why?

23. Dan the Colt

When over the hill-top the red sun is dropping,
And fowls to their perches fly up in a row,
The horses look up from the fields they are cropping
To hear the glad sound of a voice that they know,
Hallo! and Hallo!
Bay, Roan, Black and Dapple, it's homeward you go!

The gate will swing open and there he'll be leaning,
And calling aloud on the dusky night air,
And all the old horses will know what he's meaning,
And hurry to pass by the stableman there.
But, Johnny, beware!
Of Dan the young colt with his flying black hair.

For Dan the young colt isn't fond of the stable,
He knows that the morning means harness for all,
And surely he'll swerve by the gate if he's able,
And laugh at poor stableman John and his call
To stand in the stall
With dry hay and oats from the bin by the wall.

Bay, Dapple, and Roan lead the way, but young Blacky
Half-way to the gate will remember, I know,
The halter that's hidden by sly Master Jacky,
And over the field like an arrow he'll go,
With a neigh saying *NO!*
I'll lie all night long where the clover-buds grow

Wilfrid Thorley.

Note—This fine poem has a galloping rhythm which suggests fresh air and a rush of wind "Dan the young colt with his flying black hair" is full of life and loves the wide fields and juicy herbage He has no wish to spend the night in the stable—"With dry hay and oats from the bin by the wall." So when John the stableman calls all the horses in, and Jacky stands by with a halter behind him, Dan will "swerve by the gate" instead of going through it—

"And over the field like an arrow he'll go,
With a neigh saying *NO!*
I'll lie all night long where the clover-buds grow."

A "halter" is a rope or strap with a noose or headstall for horses and cattle. A "bay" is a reddish-brown horse, a "roan" has its chestnut coat thickly interspersed with white, grey or black, and a "dapple" is a grey horse with darker spots.

The picture of the waiting stableman is made more vivid by the onomatopoetic phrases—"swing open," "calling aloud," "dusky night."

There is colour in the line—"Over the hill-top the red sun is dropping"; and alliteration adds movement to the description of the "fowls" that "fly up in a row."

"Like an arrow" is a simile. Let one of the boys bring a bow and arrow to school and demonstrate how swiftly the arrow flies. Let the children tap out the strong accents

on their desks as they recite one of the stanzas; this will help them to appreciate the rhythm of the galloping horses.

Of what does the swing in the long lines of this poem remind you? When do fowls fly up to their perches? What does the stableman call to the horses? Why does Dan the Colt prefer to sleep in the meadow? Why is Master Jacky called "sly"? What is another name for Jacky? What does the colt do when he is near the gate? What is a halter? What food does the colt like best for supper? Which two lines do you like best?

24. A Song of the Greenaway Child

As I went a-walking on *Lavender Hill*,
O, I met a Darling in frock and frill,
And she looked at me shyly, with eyes of blue,
"Are you going a-walking? Then take me too!"

So we strolled to the field where the cowslips grow,
And we played—and we played for an hour or so;
Then we climbed to the top of the old park wall,
And the Darling she threaded a cowslip ball.

Then we played again, till I said—"My Dear,
This pain in my side, it has grown severe;
I ought to have told you I'm past three score,
And I fear that I scarcely can play any more!"

But the Darling she answered,—"O no! O no!
You must play—you must play.—I shan't let you go!"
—And I woke with a start and a sigh of despair
And I found myself safe in my grandfather's-chair!

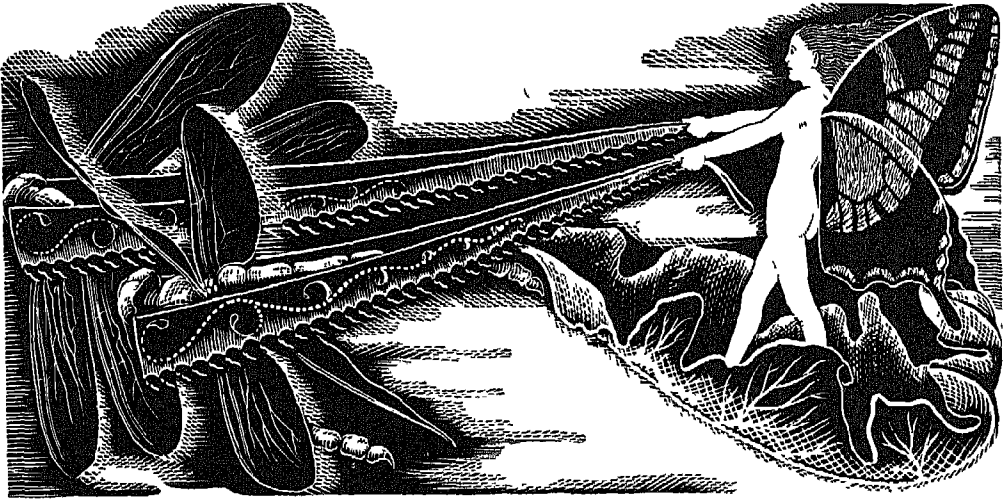
Austin Dobson.

Note—Kate Greenaway was a noted British artist of the latter half of the nineteenth century Her earlier pictures were limited to valentines and Christmas cards, but in 1877 she exhibited at the Royal Academy. She became very popular for her drawings of girls and boys dressed in early nineteenth-century costume. The childish figures and charm of composition make the pictures quaint and attractive. For a long time *Kate Greenaway* frocks were the fashion for little girls.

In the poem there is a joyous lilt combined with a certain sedateness of line which seems to suggest the natural child in the old-fashioned frock. The music of the words brings a wish to trip along—"A-walking on Lavender Hill"—with the Darling and grandfather. The word "Darling" used for the child suggests her charm. The repetition, "And we played—and we played," transforms the play into hearty romping. "Grandfather" had forgotten that he was old until he felt the pain in his side; but the child could not realise his limitations, and the final effort to please her woke him—"With a start and a sigh of despair."

It will be necessary to give the children a description of a Greenaway frock. There is a blackboard sketch of cowslips on page 235. Many children will not know how a cowslip ball is made.

Tell the story of the grandfather's dream How old is three score? Why is the child called "Darling"? What kind of clothes would you like to wear? Two children can play at strolling along. Probably some of the children can describe a "grandfather's-chair."

LET'S PRETEND

25. Catching Fairies

They're sleeping beneath the roses,
Oh, kiss them before they rise,
And tickle their tiny noses,
And sprinkle the dew on their eyes
Make haste, make haste,
The fairies are caught;
Make haste

We'll put them in silver cages,
And send them full-drest to court,
And maids of honour and pages
Shall turn the poor things to sport
Be quick, be quick!
Be quicker than thought;
Be quick.

Their scarfs shall be pennons for lancers,
We'll tie up our flowers with their curls
Their plumes will make fans for dancers,
Their tears shall be set with pearls.
Be wise, be wise,
Make the most of the prize:
Be wise.

They'll scatter sweet scents by winking,
With sparks from under their feet,
They'll save us the trouble of thinking,
Their voices will sound so sweet.
Oh, stay, oh, stay!
They're up and away,
Oh, stay! *William Cory*

Note.—This poem is so musical that it might be called a singing game. The children

in the poem pretend that they have caught some fairies and eagerly announce what is to be done with them. The fairies are daintily described—"Sleeping beneath the roses." Each stanza concludes with a child's call as musical as the trill of a bird Note the alliteration and repetition in the last three lines of each stanza. The children propose to send the fairies "in silver cages" to court, where they will amuse the king's pages and the maids of honour. A "lancer" is a soldier of a cavalry regiment armed with lances, and a "pennon" is a long, narrow flag, the military ensign of the lancers The "*plumes*" of the fairies are their feathered wings. "Court plumes" are an ornamental bunch of ostrich feathers worn by ladies in their hair when they are presented to the king and queen. The children say that the voices of the fairies are so sweet that, like music, they bring rest from "the trouble of thinking" Then, alas! they escape.

Where did the children find the fairies? What did they do before waking them up? What were they going to do with them when they were caught? What are "lancers"? What are the fairies' "plumes"? Describe one of the fairies. What would you do if you caught a fairy?

26 The Caravan

If I could be a gypsy-boy and have a caravan
I'd travel all the world, I would, before I was a man;
We'd drive beyond the far blue hills—us two, my horse and me—
And on and on and on and on until we reached the sea.

And there I'd wash his legs quite clean and bid him come inside,
Whilst I would stand upon the roof and scan the flowing tide,
And he and I would sail away and scour the Spanish main,
And when we'd swept the Spaniards out we'd p'r'aps sail home again.

Or if my horse was very tired of ships and being good,
And wanted most to stretch his legs (as many horses would)
We'd call a whale to tow us to a desert island beach,
And there we'd search for coconuts and have a whole one each

If I could be a gypsy-boy I wouldn't bring a load
Of pots and pans and chairs and things and sell them in the road.
Oh, if I was a gypsy-boy and had a caravan
I'd see the whole wide world, I would, before I was a man.

Madeleine Nightingale.

Note.—In this poem the poet pretends to be a gypsy-boy with a caravan, and is fired with desire to—

"Travel all the world . . .
Drive beyond the far blue hills . . .
And on and on and on and on"—

until at last he reaches the sea. The caravan is then to do duty as a ship. The horse's feet are washed, he is taken inside, and from the roof of the caravan ship the gypsy-boy gazes over "the flowing tide" Of course they sail to the Spanish main and make themselves famous. Afterwards they enlist the services of a whale to tow them to "a desert island beach."

The story is a pretty fancy in a racy kind of rhythm suggesting the fast travelling of youthful imagination The repetition of "*on and on*" emphasises the miles traversed Little natural touches keep the identity of the speaker in front of the reader—"We'd search for coconuts and have a whole one each" The teacher might wish to explain the meaning of sweeping the Spanish main. This could be readily done if the children know anything of the stories of Drake and Raleigh There is a blackboard sketch of a whale and a coconut palm on page 235.

What is a caravan? What people mostly live in caravans? What do these people sell? How far was the gypsy-boy going to drive? What did he do with his horse before they set sail in the caravan? How far were they going to sail? How would they reach the island of coconuts? Which line gives you the impression of travelling a very long way?

Children will like the alliteration in—"Toss in the air, with a twist and a twirl" There is a blackboard sketch of a shuttlecock on page 235.

Where is the Opposite Side? What strange things happen in that land? Why do the toys play with the children? Write the lines describing what the shuttlecocks do. Why would it be jolly to visit the Opposite Side?

27 The Opposite Side

Have you heard of the land called the Opposite Side?
The streets are ever so big and wide,
And the houses are full of lovely toys
That have such fun with the girls and boys.

The tops take the boys and spin them round,
With their feet in the air and their heads on the ground.
The shuttlecocks seize a plump little girl
To toss in the air, with a twist and a twirl.

The soldiers of tin are as fierce as can be,
And shoulder a musket at each boy they see.
But—this is a secret—whatever betide
I'd love to visit the Opposite Side!

Flora Sandstrom.

Note—What wonders are pictured on "The Opposite Side" of the earth by a child's imagination! Everyone must be upside down and walking on his head. Manners and customs cannot possibly resemble those on this side the equator. The enterprising youngster wishes that he could burrow a long tunnel through from north to south and find out what is at the other end. The poet pretends that she knows something of this strange region. All the toys there live in houses and play with the girls and boys—the very opposite of what happens here. The tin soldiers are not at all docile and obedient but fierce and quarrelsome "The Opposite Side" is full of surprises yet so fascinating that—

" Whatever betide
I'd love to visit the Opposite Side."

28. Wishing

Ring-ting! I wish I were a primrose,
A bright yellow primrose blowing in the spring!
The stooping boughs above me,
The wandering bee to love me,
The fern and moss to creep across,
And the elm tree for our king!

Nay, stay! I wish I were an elm tree,
A great lofty elm tree, with green leaves gay!
The winds would set them dancing,
The sun and moonshine glance in,
And birds would house among the boughs,
And sweetly sing!

Oh—no! I wish I were a robin,
A robin or a little wren, everywhere to go,
Through forest, field or garden,
And ask no leave or pardon,
Till winter comes with icy thumbs
To ruffle up our wing

Well—tell! Where should I fly to,
Where go to sleep in the dark wood or dell?
Before a day was over,
Home comes the rover,
For mother's kiss,—sweeter this
Than any other thing!

William Allingham.

Note—This is another gay singing game. The child pretends to be first—"A bright yellow primrose blowing in the spring." Above him wave the branches of the elm tree; he is encircled with moss and fern and visited by the wandering bee. On second thoughts, however, he would prefer to be the "great, lofty elm tree" itself, with leaves dancing in the wind—"And birds would house among the boughs." This idea sets him wishing to be a robin—"A robin or a little wren, everywhere to go." The drawback to a bird's jolly life is the problem of finding a lodging place at night. So, before the day closes, the pretended robin returns to his human form and ends his wanderings at home. The children will like to study the rhyme scheme of this poem, and find the words rhyming with "across," "boughs," "thumbs" and "this." Notice that winter is represented as a person "with icy thumbs."

What does the child wish to be first? Describe the primrose in the wood. Write down the lines describing the elm tree. Why does the child wish to be a bird? What makes him change his mind? What does he finally think is best? What would you wish to be, and why?

29. SOLDIERS

We be the King's men, hale and hearty,
Marching to meet one Buonaparty,
If he won't sail, lest the wind should blow,
We shall have marched for nothing, O!
Right fol-lol!

We be the King's men, hale and hearty,
Marching to meet one Buonaparty,
If he be sea-sick, says "No, no!"
We shall have marched for nothing, O!
Right fol-lol!

We be the King's men, hale and hearty,
Marching to meet one Buonaparty,
Never mind, mates; we'll be merry, though
We may have marched for nothing, O!
Right fol-lol!

Thomas Hardy

Note—The finest marches are played by military bands, walking at the heads of their regiments. "Soldiers" is a jolly marching song, suitable for singing when playing at soldiers. It was supposed to be sung by the king's men when they were preparing to fight the great French general Napoleon Buonaparte, who was threatening to invade England by crossing the Channel with his army in a fleet of flat-bottomed boats. The invasion, however, never took place. It will be necessary for a clear understanding of the poem to tell the children about this proposed invasion. The rhythm of the poem is very marked and is intensified by repetition—

"We be the King's men, hale and hearty,
Marching to meet one Buonaparty."

Similarly, the last lines and the refrain, "Right fol-lol," emphasise the tread of a body of men.

Thomas Hardy was one of England's greatest poets and novelists. He was a native of Dorsetshire, and the scenes of his novels were confined to Wessex, his home-province. As a young man, he studied architecture. All of his novels attain a very high level of imaginative and technical excellence, but some people think that they are surpassed by his poetry. His best work is *The Dynasts*, an epic-drama finished in 1908, "a noble contribution to world literature." *Tess of the D'Urbervilles* is the most famous of his novels. Running through all his work is a note of fatalism, a tragic recognition of the futility of human life which he sees as something "pitiably transient against the eternal impassivity of nature."

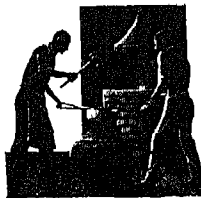
Of what does the music of this poem make you think? Who was "Buonaparty"? Why did the soldiers sing—"We shall have marched for nothing, O!"? Which word rhymes with "Buonaparty"? Which lines are repeated in the poem? What is the name of the poet? The children will like to march round the room while reciting the poem. There is a blackboard sketch of Buonaparte's hat on page 241.

30. Choose Your Calling

How would you like to be a farmer's boy?
Riding on a mare,
Carting in the hay,
Ploughing with a pair,
Grooming down the bay,
Hoeing through the corn,
Minding solemn cows,
Scaring crows at morn,
Feeding of the sows,
Sowing, mowing, reaping—Hoy!
What a jolly life for a farmer's boy!

How would you like to be a joiner's boy?
Sawing up the pine,
Planing at the deal,
Making windows fine,
Turning round the wheel,
Hammering the nails,
Boring with the brace,
Fixing up the rails,
Fretting wooden lace,
Gluing, glazing, nailing—Hoy!
What a jolly life for a joiner's boy!

How would you like to be a grocer's boy?
Standing in a store,
Cutting up the ham,
Sweeping round the floor,
Selling pounds of jam,
Writing down the bill,
Tying up the rice,
Changing from the till,
Shouting out the price
Talking, smiling, bowing—Hoy!
What a jolly life for a grocer's boy!

How would you like to be a blacksmith's boy?
Turning up your sleeves,
Knocking out a shoe,
Hammering with ease,
Fitting horses true,
Blowing out the sparks,
Mending iron pots,
Having merry larks,
Making hoops for tots;

Knocking, blowing, mending—Hoy!
What a jolly life for a blacksmith's boy!

By permission

Note—This is a fine poem for a boy to recite, as it is full of spirit and energy. The short lines produce an effect of briskness and action. "Wooden lace" is a metaphor, suggesting a comparison between fretwork and lace. Ploughing with a "pair" is, of course, a pair of horses; "deal" is a piece of sawn fir or pine wood; a "brace" is a revolving tool for boring, "glazing" is covering a painted surface with a thin coat of a different transparent colour to modify the tone. The concluding lines of the stanzas summarise their individual attractions The first is breezy and full of fresh air, the second is careful, delicate and manipulative; the third is suave and polite, and the fourth strong, active and noisy.

What things are done by a farmer's boy? Why does a joiner's boy have a jolly life? Why must a grocer's boy talk, smile and bow? What work is done by a blacksmith's boy? If you had to choose your calling out of these four, which would you like to be, and why? What makes this a jolly poem?

31 The Fairies

Up the airy mountain,
  Down the rushy glen,
We daren't go a-hunting
  For fear of little men,
Wee folk, good folk,
  Trooping all together;
Green jacket, red cap,
  And white owl's feather!

Down along the rocky shore
  Some make their home,
They live on crispy pancakes
  Of yellow tide-foam;
Some in the reeds
  Of the black mountain lake,
With frogs for the watch-dogs,
  All night awake

High on the hill-top
The old King sits;
He is now so old and gray,
He's nigh lost his wits
With a bridge of white mist
Columbkill he crosses
On his stately journeys
From Slieveleague to Rosses,
Or going up with music
On cold, starry nights,
To sup with the Queen
Of the gay Northern Lights

They stole little Bridget
For seven years long,
When she came down again
Her friends were all gone.
They took her lightly back,
Between the night and morrow,
They thought that she was fast asleep,
But she was dead with sorrow.
They have kept her ever since
Deep within the lake,
On a bed of flag leaves,
Watching till she wake.

By the craggy hill-side,
Through the mosses bare,
They have planted thorn-trees
For pleasure here and there.
Is any man so daring
As dig them up in spite,
He shall find their sharpest thorns
In his bed at night

Up the airy mountain,
Down the rushy glen,
We daren't go a-hunting
For fear of little men;
Wee folk, good folk,
Trooping all together;
Green jacket, red cap,
And white owl's feather!

William Allingham.

Note—"The Fairies" is a poem full of music with light, dancing, fairylike rhythm, and describes the little men who live among mountains near the seashore Parents tell their children such strange stories about these tiny people that they are afraid to venture—

" Up the airy mountain,
Down the rushy glen,"—

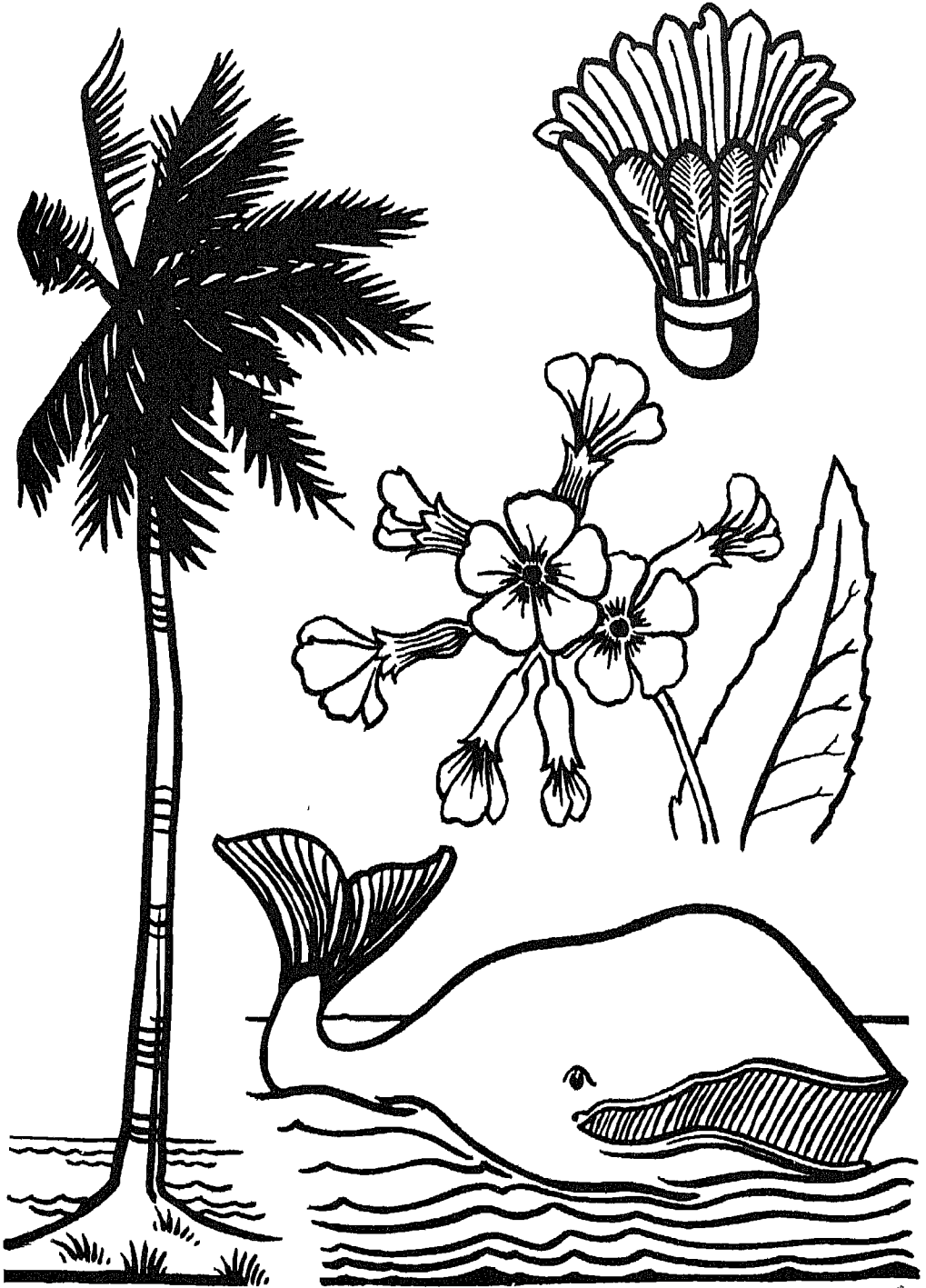
in case they meet the "wee folk" Some, they say, live on the rocky shores by the sea, and others on the reedy margin of the mountain lake. Their king is very old and grey, but still goes journeying across the hilltops on bridges of mist, to visit the Queen of the Northern Lights. One little girl, Bridget, was stolen by the fairies, who kept her for seven years. When she returned "her friends were all gone" and she died of a broken heart Any man who dares to interfere with the fairy thorn-trees planted "by the craggy hill-side" will be punished by finding thorns in his bed

All this dainty gossip is told in sweet, musical words and phrases—"airy mountain," "rushy glen," "wee folk," "crispy pancakes," "yellow tide-foam," "craggy hill-side," "cold, starry nights." The picture painted of the fairies is a fascinating one. They roam about in little troops all dressed alike—

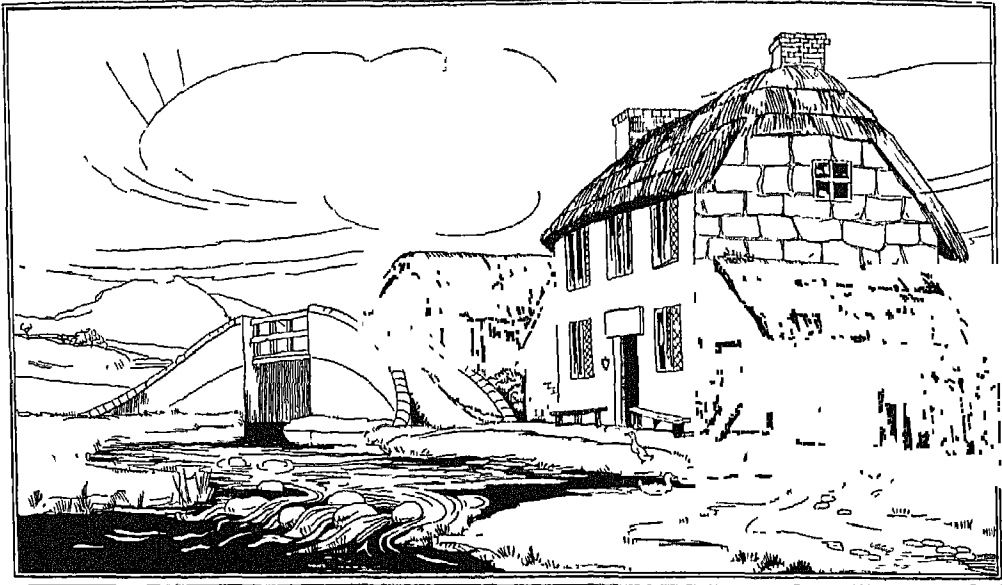
" Green jacket, red cap,
And white owl's feather."

Their homes are vividly sketched and coloured Their stately old king who has "nigh lost his wits" is a reverend figure They are mischievous to steal little children, and spiteful towards meddling people; but still they are "wee folk, good folk," and charm the hearts of young and old.

Write down lines describing the fairies. What kind of music does the poetry make? Where do the fairies live? Tell all you know about the Fairy King. Write the story of little Bridget. Which lines show that the fairies are spiteful? Write a line with colour in it. What are the fairies' "watch-dogs"? What would you do if you met the "wee folk"?

SKETCHES FOR THE BLACKBOARD

Coconut Palm (The Caravan)
Shuttlecock (The Opposite Side)

Whale (The Caravan)
Cowslip (A Song of the Greenaway Child)

POEMS BY LORD TENNYSON

A short biography of the famous Victorian poet Lord Tennyson is given in Volume VI. The following simple account will serve for the children's introduction to this section.

One of the greatest English poets was Alfred Tennyson, who became Lord Tennyson He was born in a country rectory in Lincolnshire, in the year 1809 While he was only a schoolboy, he helped his brother to write a book of poetry. He wrote the first book of poems that were his very own while he was at college, and another one soon after leaving college

Some people writing in the papers said that they did not like his poetry. But he did not sulk about this, or give up in despair and say that he would never write any more poetry, as some people might have done. He tried very hard to make his poems better He learned all he could, especially about the sun, moon and stars, and the beautiful things on the earth. And he tried, too, to choose his words more and more carefully. He worked hard for ten years, and when he was thirty-three years of age he published some more poems. These were so beautiful that people then said that he was the greatest living poet, and a few years later he was made Poet Laureate. Tennyson must have been very glad that he had tried so hard to succeed

He lived for many years in the Isle of Wight, and if you go there, you may see a noble stone cross near the top of one of the high cliffs not far from a place called Freshwater That cross marks the spot where Tennyson used to sit or stand every day, gazing out over the sea, or looking down on the trees in his own garden on the other side of the cliffs.

Tennyson was one of the finest-looking men in the world He was very tall, and he had a great shock of rough, dark hair; bright, laughing, hazel eyes; and a musical voice

Tennyson was always seeking for beautiful words, and trying to fit them together to

make sweet-sounding music In the poem called "The Brook," you will see how Tennyson chose words to sound like running water

32. The Brook

I come from haunts of coot and hern,
I make a sudden sally,
And sparkle out among the fern,
To bicker down a valley.

By thirty hills I hurry down,
Or slip between the ridges,
By twenty thorps, a little town,
And half a hundred bridges

Till last by Philip's farm I flow
To join the brimming river.
For men may come and men may go,
But I go on for ever

I chatter over stony ways,
In little sharps and trebles,
I bubble into eddying bays,
I babble on the pebbles.

With many a curve my banks I fret
By many a field and fallow,
And many a fairy foreland set
With willow-weed and mallow.

I chatter, chatter, as I flow
To join the brimming river:
For men may come and men may go,
But I go on for ever.

I wind about, and in and out,
With here a blossom sailing,
And here and there a lusty trout,
And here and there a grayling.

And here and there a foamy flake
Upon me, as I travel
With many a silvery waterbreak
Above the golden gravel,

And draw them all along, and flow
To join the brimming river·
For men may come and men may go,
But I go on for ever.

I steal by lawns and grassy plots,
I slide by hazel covers,
I move the sweet forget-me-nots
That grow for happy lovers.

I slip, I slide, I gloom, I glance,
Among my skimming swallows,
I make the netted sunbeam dance
Against my sandy shallows.

I murmur under moon and stars
In brambly wildernesses,
I linger by my shingly bars;
I loiter round my cresses;

And out again I curve and flow
To join the brimming river
For men may come and men may go,
But I go on for ever

Lord Tennyson.

Note.—"The Brook" is part of a longer work describing the inmates of Philip Willows' farm "where brook and river meet." Along the margin of the brook the poet and his friend Edmund as youths were wont to stroll, stopping at the farm for a chat with old Philip and his daughter Katie—

"Her eyes a bashful azure, and her hair
In gloss and hue the chestnut."

By the brook the two friends parted—

"I to the East
And he for Italy—too late—too late"

They never met again, for Edmund died in Italy, and when the poet returned later to the brook, old Philip too was dead, and

Katie had gone to Australia. So he sat on a stile—

> "Bowing o'er the brook
> A tonsured head in middle age forlorn"—

when suddenly a maiden approached, and stood waiting to pass:

> "Her eyes a bashful azure, and her hair
> In gloss and hue the chestnut"

Questioning her in wonderment the poet discovered that she was Katie's daughter. Katie and her two children had returned from Australia and bought the farm that old Philip had tenanted. So the poet received a hearty welcome there.

The stanzas of "The Brook" peep out here and there in the narrative, just as the sparkling water gushes up in the green meadows. "The Brook" is full of the music of a stream, music cunningly made by the skilful use of onomatopoetic words, alliteration and smoothly running rhythm.

The brook begins as a little runnel among the quiet haunts of coot and hern. ("Coot" are swimming and diving birds, and "heron" are long-legged wading birds—see blackboard sketches on page 241) As the volume of the brook increases so its pace quickens:

> "By thirty hills I hurry down,
> Or slip between the ridges."

Contrast "the brimming river" with the description of the brook in the third stanza, and note the delicate alliteration in the lines

> "By many a field and fallow,
> And many a fairy foreland"

The brook's "forelands" are very tiny compared with those overlooking the sea, so they are delightfully described as "fairy." The frequent repetition suggests the eternity of the running water

> "Men may come and men may go,
> But I go on for ever"

"Fallow" is uncultivated land; a "thorp" is a village or hamlet; "eddying bays" are small whirlpools; "willow-weed" or willow-herb is a plant that generally grows near water, and has willowlike leaves and pale purple flowers; "mallow" is a plant with a hairy stem and leaves, and purple flowers.

Let the children repeat the following words, trying to show the meanings by the sounds—"chatter," "bicker," "sparkle," "bubble," "babble," "pebble," "slide," "murmur," "linger" Several words in the poem will need to be explained, but explanations should not be laboured, or the delightful music will be spoilt for the children

What does the music of this poem suggest to you? Write out the stanza which sounds like water running over stones. How is the river different from the brook? Where do the brook and river meet? What lines in the poem are repeated? How long does the brook go on running?

33. CRADLE SONG

> What does little birdie say
> In her nest at peep of day?
> Let me fly, says little birdie,
> Mother, let me fly away.
> Birdie, rest a little longer,
> Till the little wings are stronger
> So she rests a little longer,
> Then she flies away.
>
> What does little baby say,
> In her bed at peep of day?
> Baby says, like little birdie,
> Let me rise and fly away.
> Baby, sleep a little longer,
> Till the little limbs are stronger.
> If she sleeps a little longer,
> Baby too shall fly away.
>
> *Lord Tennyson.*

Note—"Cradle Song" has a lively rhythm as of a young thing wide awake and trying to throw off restraint. The short lines are

suggestive of quick movement, and the language is carefully chosen to fit the little creatures it describes. The constant repetition of "little" emphasises the helplessness of the baby bird and child—"little birdie," "little wings," "little longer," "little baby," "little limbs." There is music in the repetition·

"'Let me fly,' says little birdie,
'Mother, let me fly away.'"

Notice the beauty of phrasing in "peep of day," "rest a little longer," "sleep a little longer" Many words and phrases in the first stanza recur in the second, as notes of music are repeated in a song. This cradle song is not of the usual kind, suggestive of a mother rocking her child to sleep, on the contrary it is the awakening of the little one, eager and full of life, at the "peep of day."

Which word in this poem is often repeated? What does the birdie say to its mother? What does the mother say to the birdie? What does "peep of day" mean? What does mother tell her baby in the early morning? Where is the baby when the mother is talking? Why is the poem called "Cradle Song"?

34 Sweet and Low

Sweet and low, sweet and low,
Wind of the western sea,
Low, low, breathe and blow,
Wind of the western sea!
Over the rolling waters go,
Come from the dying moon, and blow,
Blow him again to me;
While my little one, while my pretty one, sleeps.

Sleep and rest, sleep and rest,
Father will come to thee soon,
Rest, rest, on mother's breast,
Father will come to thee soon;
Father will come to his babe in the nest,
Silver sails all out of the west
Under the silver moon;
Sleep, my little one, sleep, my pretty one, sleep.

Lord Tennyson.

Note—One of Tennyson's longer poems is called "The Princess." It describes a college for women from which all men were debarred entry on pain of death. Princess Ida was the Principal, and her aim was to educate her sex to equality with the male sex. She had been betrothed in childhood to a neighbouring prince, and in order to gain access to her, he disguised himself as a woman, and, with two friends similarly disguised, he was enrolled as a college student. In the story of their betrayal and the consequences Tennyson expressed his views on woman's place and mission.

"One
Not learned, save in gracious household ways,
. . . Interpreter between the Gods and men."

"The Princess" is divided into sections, each of which is introduced by a song. One of these is "Sweet and Low." It is sung to her babe by a woman whose husband is sailing home "out of the west." There is a gentle rocking in the rhythm. The words are soothing and quiet—"sweet and low," "sleep and rest"—and the repetition and alliteration add to the crooning sleepiness of the song. A gentle blowing sound is suggested by the alliteration in—"Wind of the western sea" "Babe in the nest" is a metaphor implying a comparison between

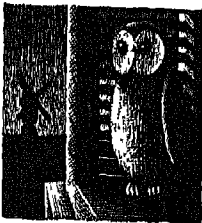
the sleeping child and a baby bird. This poem has been set to music by Sir Joseph Barnby, and is probably his most popular composition

Who is singing this song? Where is baby's father? Of what does the music of the lines remind you? Write down words which should be said softly Which line has the gentle blowing of the wind in it? Little groups of words are called *phrases*. Which phrase reminds you of a rough sea? Why are the ship's sails called "silver sails"? With what is the baby in its cradle compared? Which are your favourite lines? (The children will like to repeat such phrases as—"dying moon," "rolling waters," "silver sails," "breathe and blow ")

35. The Owl

When cats run home and light is come,
  And dew is cold upon the ground,
And the far-off stream is dumb,
  And the whirring sail goes round,
  And the whirring sail goes round;
    Alone and warming his five wits,
    The white owl in the belfry sits.

When merry milkmaids click the latch,
  And rarely smells the new-mown hay,
And the cock hath sung beneath the thatch
  Twice or thrice his roundelay,
  Twice or thrice his roundelay,
    Alone and warming his five wits,
    The white owl in the belfry sits.

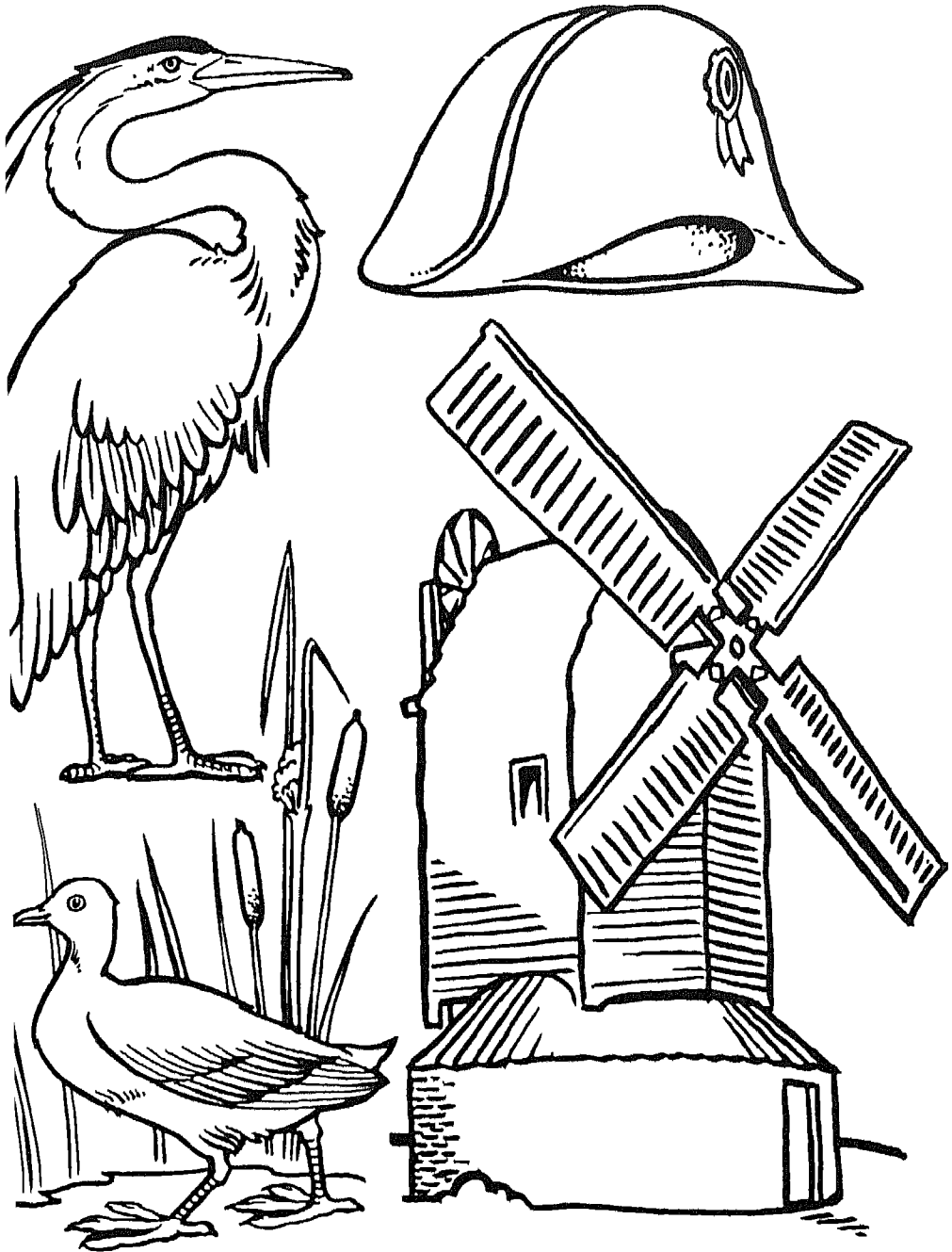
Lord Tennyson.

Note—"The Owl" is a tiny song describing the daybreak Its details reveal a close observation of Nature Alone in the belfry sits the white owl, "warming his five wits" and regardful of the signs of morning. He sees light spread over the land from the east. The cats run home, the earth is cold with dew, the river is silent, wafts of scent float up from the new-mown hay, the milkmaids enter the cowsheds, and two sounds only fill the air—the whirr of the windmill's sails and the crowing of the cock. The repeated lines in each stanza emphasise their echoing noise amid the surrounding quiet. The "belfry" is a space where the bells are hung in a church tower

Palgrave said that Tennyson's work lay "somewhere between that of Virgil and Shakespeare, having its portion in the inspiration of both" Shakespeare's song "Winter" compares in some respects with Tennyson's song "The Owl" There is similarity in rhythm, language and type of observation Here is the first stanza of "Winter"—

"When icicles hang by the wall
And Dick the shepherd blows his nail,
And Tom bears logs into the hall,
And milk comes frozen home in pail,
When blood is nipt, and ways be foul,
Then nightly sings the staring owl
    Tuwhoo!
Tuwhit! tuwhoo! A merry note!
While greasy Joan doth keel the pot."

Other poems by Lord Tennyson in this volume are "The Bee and the Flower" and "The Throstle"; (see Nos. 16 and 18, "Of Flowers and Birds").

Where does the owl live? Which word describes the noise made by the windmill's sails? Which word describes the music of the cock's crow? By what signs does the owl know that morning has come? Which lines describe the owl? When does an owl sleep? Which lines in the poem suggest noise? Which words rhyme with "come," "hay," "wits"?

It will be advisable to tell the children why the owl is called wise.

HERON (THE BROOK)
COOT (THE BROOK)

BUONAPARTE'S HAT (SOLDIERS)
WINDMILL (THE OWL)

SIX NOTABLE PICTURES FOR ORAL AND WRITTEN COMPOSITION

1. THE PRINCESS AND THE FROG

From the picture by W R Symonds] [*By permission of the Bradford Art Gallery.*

THE PRINCESS AND THE FROG

LET the children examine the picture (No 146 in the portfolio) in silence, and then invite them to tell all they can about it.

What is the title of the picture? What is a princess? Do you know the name of a princess? What is a prince? Does the princess in the picture look like a princess of to-day? Describe the dress of the princess in the picture? What is the name of the fur on her cloak? At what is the princess looking? What is resting beside the frog? On what is the princess sitting? Is the fountain empty or full of water? Where does the water come from? What is the metal figure meant to represent? Does the picture show summer or winter? What are the names of the birds in the picture? At what time of the year do we see swallows? What are the swallows doing?

STORY

One summer evening a princess was playing with a golden ball in the palace gardens Close by a fountain poured out sparkling water She threw her golden ball in the air and caught it again, laughing joyously as it gleamed in the evening sunshine At last she tossed it so far that she could not catch it. The ball rolled to the edge of the fountain, and sank into the water

The princess ran to the fountain and gazed in, looking for her treasure, but the water was so deep that she could not see the bottom She burst into tears. Just then a frog put his head out of the water, sat on the edge of the fountain and spoke to her in a croaking voice. "Princess, why do you weep?" he asked.

"Because I have dropped my golden ball into the fountain, and cannot get it back," sobbed she.

"If I fetch it for you," said the frog, "will you love me and let me live with you? May I eat from your golden plate and drink from your golden cup? Will you let me sleep at night upon your silken pillow?"

"What a horrid frog!" thought the princess. "Ah! but he'll never be able to get into the palace; and I do so want my golden ball." She shivered as she looked at him, and then said, "Very well, I promise what you ask"

The frog dived under the water and soon came up again carrying the golden ball in his mouth. The princess seized the ball, and without a word of thanks ran back to the palace.

"Princess, princess, take me with you!" called the frog The ungrateful princess paid no heed, however, and ran on till she was safely inside the palace.

That evening, as the princess was eating her supper, there was a strange noise,—tap-tap, tap-tap,—as if someone were coming up the marble staircase Then there came a gentle knock at the door.

"Go and see who it is, my dear," said the king to his daughter.

The princess opened the door and looked out There on the landing sat the frog, whom she had quite forgotten

"Keep your promise, princess," he croaked.

"Oh no! no!" cried the princess She shut the door in haste, and went back to her supper.

"Who was it, my dear?" asked the king.

"There is a horrible little frog at the door," she replied. "He fetched my ball out of the fountain for me, and now he says that I have promised he may eat out of my plate and drink out of my cup and sleep to-night on my pillow"

"A promise is a promise," said the king "Daughter, you must let the frog come in"

The door was opened, and the frog hopped up to the princess's chair. "Lift me up, lift me up," he croaked.

The princess was obliged to pick him up between her finger and thumb, and place him on the table.

"Now push your golden plate near me so that we may eat together," said the frog.

When he had eaten, he said, "Tilt your golden cup that I may drink"

The princess was in tears, but she had to keep her word.

When bedtime came she carried the frog up to her bedroom, where he slept all night on her silken pillow

As soon as daylight came, the frog jumped off the bed, hopped downstairs and out through the palace door. "He has gone," thought the princess joyfully. "I shall be troubled no more by the hateful creature."

She was mistaken, however. That night at supper-time there came again the tap-tap up the stairs and the gentle knock on the door Once more the princess was forced to allow the frog to eat from her plate, drink from her cup and sleep on her silken pillow. In the morning he went out as before, and came the third night as usual, to share her food, her drink and her bed.

On the fourth morning, when the princess woke, she found a handsome young prince standing at the head of her bed. She opened wide her blue eyes, and gazed at him in wonder.

"Fair princess," he said, "I am the frog from the fountain. A spiteful witch changed me into a frog, and the spell could not be broken until a princess should take me from the fountain and let me share her bed for three nights. You have broken the spell at last. I love you. Will you be my bride, and come away with me to my kingdom?"

"Oh yes, I will," said the princess, calling for her maidens to dress her quickly When she went downstairs, she found the Frog Prince awaiting her. A splendid coach stood at the door, and gaily-dressed servants greeted their prince and princess with happy smiles The king and queen gave their blessing. The bridal pair seated themselves in the coach. The coachman cracked his whip Away went the horses, and the Frog Prince with his lovely princess set out for home.

Questions to follow the Story-Telling It is an excellent plan to follow the telling of a story to a class by asking a number of questions on it By this plan the teacher will discover whether the children have been paying full attention to the reading, the teacher will be able to ascertain whether any parts of the story have not been thoroughly understood; also, it will then be possible to explain the meanings of any difficult words or phrases

Such questions as the following have not been appended to all the stories, but the teacher will find no difficulty in framing them.

At what time of the year did the princess see the frog? Why was the princess glad to see the frog? What made the frog talk to the princess? What did the frog say it would do for her? What did the princess have to promise the frog? What did the princess say to herself when the frog said, "Will you love me and let me live with you?" What did the princess do directly the frog brought her golden ball out of the water? What did the frog call out as the princess ran back to the palace? When did the princess hear a strange tapping at the door? Who told the princess to open the door? What did the frog say to the princess when she opened the door? What did the princess say to the frog? What did the king say to the princess when she told him about the frog getting her ball out of the fountain? What happened when the princess opened the door again? From what did the princess and the frog eat? From what did they drink? How may we know that the princess did not like eating and drinking with the frog? What did she do at bedtime? What happened in the morning? When did the frog go to the palace again? What happened on the fourth morning? What did the prince say to the princess? Who had turned the prince into a frog? What is a bride? What is a coach? Where did the bride and the Frog Prince go?

2. OUR ANCIENT WORD OF COURAGE: FAIR SAINT GEORGE

From the picture by Georges Scott in the Paris Salon.]

"OUR ANCIENT WORD OF COURAGE, FAIR ST. GEORGE"
THE PATRON SAINT OF ENGLAND

LET the children examine the picture (No. 147 in the portfolio) in silence, and then invite them to tell all they can about it.

What is Saint George doing? What protects Saint George? Describe his armour. What is carried on his arm? On which arm? Why on the left? What is the use of a shield? What does Saint George hold in his right hand? What protects his right hand? Is the lance straight in the picture? Why is the lance bent? What has Saint George

done with the lance? (He has thrust it through the dragon's mouth and pinned him down to the ground.) Was this an easy thing to do? Look at Saint George again. With what else is Saint George armed? How is the hilt of the sword shaped? (In the shape of a cross.) What does Saint George wear over his armour? Why does the cloak stream out behind him? (Because Saint George has rushed swiftly on the dragon, and the cloak flies back in the wind.) Of what colour is the saint's hair? (It is bright auburn in colour, and curling.) What can you see surrounding his head? (A halo or aureole.) What does this show? (That he is a saint.) What look is on the saint's face? (A look of stern determination to conquer the dragon.) How does it show this? (His brows are bent and frowning, his blue eyes flash, his mouth is firmly closed, his face is rigid.) How does Saint George ride his horse at this moment? (He has risen in the stirrups.) Why has he done this? (To have more power to pin the dragon down.) Describe the horse. (A large white horse, very powerful.) What is it doing? (In the act of springing over the dragon. Describe its trappings. (They are of red leather ornamented with gold.) What do you see over his hind quarters? Of what is the saddle cloth made? (It looks like red velvet fringed with gold.) Describe the dragon. (He is black and scaly like a reptile, he has four feet each with five wicked-looking sharp claws, and a long scaly tail.) How do you know he can fly? (He has black wings looking like the wings of a huge bat—very ugly.) What sort of a head has the dragon? (A huge reptile-looking black head, ugly green eyes, huge gaping jaws with immense teeth, long red tongue.) Why are you sure the dragon will die? (Because the lance has transfixed his head.) What can you see at the right hand corner of the picture? (A human skull and leg bone.) Why do you think the artist painted these close to the dragon? (They are symbols of death.) Of what is the dragon the symbol? (He is the symbol of the power of evil which must be destroyed by the power of good.) By looking at the picture tell about what time of the day the dragon was killed. (Near sunset.) How can you tell this? (The little clouds in the sky are painted with sunset colours, and the light of the setting sun glows on the walls of the building near the centre of the picture. Does the sunlight fall on the castle on the left? (No, it is in shadow.) After looking all round the picture, tell if the scene looks like England. (There is shown a castle which is built in a different style from those that remain in England.) What do you see in the right hand bottom corner opposite the skull? (The name *Georges Scott* painted on a scroll.) Who do you think Georges Scott is? Does a painter usually put his name on his picture? In what country is George spelled with an *s* at the end of the word? (In France it is written Georges.) Do you think from this the artist is a Frenchman? (Yes, it is a French Christian name.) What country does the picture show perhaps? (Probably France, especially as castles like the one painted on the left are seen in France, with towers like pepper pots.) Do you think his surname is French or British? (It is a British surname.) Where was the picture exhibited? (In the Paris Salon—the equivalent of the Royal Academy in London.)

STORY

This story was written more than 300 years ago by a famous English poet named Edmund Spenser. It is found, among others, in a long poem which tells of a Fairy Queen who had at her command twelve brave knights endowed with magic powers. At that time a fierce dragon was ravaging the land; his cruelty had forced a noble king and queen to take refuge in a tower surrounded by a wall of brass. This king and queen had one child, Una, who came to the court of the Fairy Queen, begging her to send one of her knights to rescue Una's parents. A youth, known as the Red-Cross

Knight, was given to her, and together they set out in search of the dragon.

As Una and the Red-Cross Knight rode on their way they came near her father's wasted lands and the brazen tower in which her parents were imprisoned.

"Dear Knight," said Una, "we are now come where our peril must begin," and warning him that they might encounter the dragon at any moment she prayed him to be constantly on his guard.

As she spoke, the maiden pointed out the tower, and at the same time a hideous roar filled the air with horror. They looked up and beheld the dragon stretched out on the sunny side of a hill The moment that the monster saw the knight's shining armour, he raised his great frame and hastened towards them as if delighting in the prospect of fresh prey.

Then the knight bade Una leave him and withdraw to a hill at a little distance, where she could watch the fight and yet be secure from danger. The dreadful beast came on steadily, half walking, half flying in his haste. He covered the ground quickly, and as he went, cast a huge shadow over the wasted land

As the dragon approached the knight, he reared on high his monstrous body, which looked the more horrible that it was swollen with wrath and venom It was covered with brazen scales, so closely placed that nothing could pierce them, and the dragon shook the scales until they sounded like the clashing of armour He had wings which he spread out like great sails, and when these smote the air, the clouds fled in terror before them, and the heavens stood still in astonishment. His tail was twisted in a hundred folds, and lay over his scaly back, and when he unfolded its coils and displayed its full length, it swept the land behind him for three furlongs. At its extremity were inserted two deadly stings, sharper than the sharpest steel. And still sharper and more cruel were his claws, so cruel and ravenous that all they touched, and all they drew within their reach, suffered certain destruction.

But most fearful of all was the dragon's head It had deep-set eyes, that burned with rage, and shone forth like shining shields, in his gaping jaws were set three rows of iron teeth. From these trickled the blood of the creatures he had lately devoured, while from between his jaws issued clouds of smoke that filled the air with sulphurous stench Such was the foe the Red-Cross Knight must face and conquer. On came the dragon, raising his haughty crest, shaking his scales, and hastening so joyously to the combat, that the knight inwardly quaked for fear.

And now began the first of three days' mortal strife. The Red-Cross Knight couched his lance and ran fiercely at his foe. The lance did not wound, but it annoyed the dragon: he turned aside, and as he turned, swept both the horse and its rider to the ground In a moment the knight had risen, and renewed the attack Never before, although many a knight had fought with him, had the dragon felt such force in the arm of a foe, and yet the deadly thrusts glanced back from his well-armed breast, leaving him unhurt.

But the knight's persistent attacks roused the monster's rage. He spread his great wings, and lifting himself into the air swooped down upon his foe, and seized both horse and man in his cruel claws He carried them an arrow's shoot, when their fierce struggles obliged him to let them fall; and the knight, putting the force of three men into a single blow, once more aimed his lance at the impenetrable scales. Again the blow glanced aside, but this time it glided close under the dragon's upraised wing, and there inflicted so sore a wound, that the monster, unaccustomed to pain, roared aloud with a noise like that of the ocean in a wintry storm.

The weapon stuck in the dragon's flesh, until he contrived to tear it out with his claws, whereupon black blood streamed forth from his wound, and flames of fire from his nostrils In his rage, he flung his great tail about. it twisted round the

horse's legs, and the steed in its effort to get free only became the more entangled, and at length was forced to throw the knight. Quickly he arose, and laying hold of his powerful sword, struck the dragon a blow that seemed as if it must prove fatal. But the hardened iron took little effect upon the still more hardened crest, although it fell with a force that made the dragon careful to avoid its blows.

The knight grew angry when he saw his strokes of no avail, and struck again with greater might, but the steel recoiled, leaving no mark where it had fallen.

Now the dragon was suffering from the wound under his wing, and impatient of the pain, tried again to rise into the air. But the injured wing impeded his effort, and full of rage and disappointment, he uttered a roar such as had never before been heard, and once more sent out flames of fire. These came right into the face of the knight, and making their way through his armour, burned him so sorely that he could hardly endure its weight. Faint and weary, burned, and sore with his wounds, worn out with heat and toil, and with the very arms he bore, death seemed to him much easier than life. "But death will never come when needs require," and his despair well nigh cost him dear

The dragon, seeing his discomfiture, turned upon him, and smiting him with his tail, felled him to the ground. Very near, then, was the knight to the death he coveted However, it so happened that, unknown to him, a well of rare virtue lay close by. Its waters could cure sicknesses, make the aged young, wash sinful crimes away, and even restore the dead to life. In the happy days before the accursed dragon had brought ruin to the land, it had been called the Well of Life; and though he had defiled its sacred waters with innocent blood, it still retained many of its ancient virtues Into this spring the knight fell.

And now the sun began to set, and Una, watching from her hill, saw her champion fall, and saw, too, that the monster swelled out his proud breast, and clapped his great wings as if in victory Little knowing the boon that had befallen her knight, the maiden grew very sad at heart, thinking all was lost. No sleep was possible to her. With folded hands, on lowly knees, she spent the long anxious hours in earnest prayer.

When morning came, Una arose and looked anxiously around to see if, haply, she might discover the warrior still alive, for with the morning new hopes frequently arise By and by, to her great joy, she saw him start up, all fresh and invigorated by the powers of the wondrous well. The dragon was confounded at the sight, and knew not whether this was his foe of yesterday, or another come to take his place, when the knight uplifted his bright blade, and struck the monster a blow upon the skull, which wounded him in right earnest.

Whether the sword had received some secret virtue from the waters of the well, or whether they had only increased the strength of the knight's right arm, none can tell, but never before had a blow taken such effect on the cruel monster. He yelled aloud as if he were a hundred lions all in one, he tossed his great tail aloft, and scourged the air into a tempest, and flung about its mighty length, so that it overthrew high trees, and tore rocks into pieces Then advancing his tail high above his head, the dragon struck the knight and smote him to the ground. The cruel sting pierced through his shield and fixed itself in his shoulder. There it remained, causing him very severe pain.

The knight was nearly overcome, but more mindful of the issues involved in the combat than of his own suffering, he rose and tried to free himself Unable to loose the sting, and inflamed with wrath and anguish, he struck the dragon on the tail, and at one blow cut off five of the mighty joints. Deeply enraged, the creature thought to avenge himself once for all, and gathering himself up, fell fiercely on the knight's shield, and kept fast hold of it.

And now was the Red-Cross Knight terribly encumbered Three times he strove to release his shield from the dragon's clutch, and three times failed In despair he summoned his trusty sword to his aid, and laid about with it so ruthlessly that at length the creature was forced to withdraw one foot in order to defend himself. Then the knight directed all his blows against the other foot, still fast fixed on the shield, until, by happy fortune, the sword fell upon the ankle joint and severed it.

Upon this there burst forth from the beast such smoke and flames and brimstone as to dim the light of heaven itself and force the warrior to retreat, lest he should be scorched alive As he did so, his weary feet slipped, and he fell down, sore terrified with the dread of shame.

Now it chanced that close by where he fell there grew a goodly tree, laden with apples. Great virtue had belonged to this tree, and even now there trickled forth from it a stream of balm that fell on the ground and watered it as if with dew This little stream imparted life and long health to all whom it benefited, and into its soothing power the knight fell, on this, the close of the second day's fight.

Once more his life was saved, for the dragon, who was of death and darkness, dared not approach aught life-giving And now the daylight began to fade, and Una, seeing her lord again fall and lie motionless, knowing not that he lay in the healing balm, was once more stricken with sore affright, and watched and prayed for him all through the weary darkness.

When morning again dawned Una saw her knight arise, healed and refreshed, ready for renewed combat. And the dragon, who had lain waiting for the day that he might destroy him, grew afraid when he beheld his foe as fresh as if he had not fought at all. Nevertheless, he advanced, full of his wonted pride and rage, with jaws wide open, thinking to devour his foe at the first encounter

But the knight was prepared to meet him; thrusting his keen lance between the monster's open jaws, he ran it through his mouth, and wounded him with a mortal wound Then the dragon fell, and as he fell the earth groaned as if unable to support his weight. And the valiant knight himself trembled, so huge and hideous did the slain dragon look.

Una, who had seen all from her hill, dared not at first approach, but at length finding that the huge mass made no movement, she shook off her terror, and, drawing near, saw that the terrible monster was indeed dead Then praising God, she thanked her brave champion for the great deliverance

The sun had scarcely risen above the eastern horizon, when the watchman who stood on the battlements of the brazen tower, saw the last breath of the monster fade away, and knowing then that the dragon was dead, shouted out the glad tidings.

The king heard the shout, and rose in joyful haste, although for his feebleness he could not make much speed, and looked forth to see if the tidings were indeed true When he found that they were, he commanded the brazen gate, long closed, to be thrown open, and peace and joy to be proclaimed throughout the land—for the dragon was slain! Then the trumpets sounded the happy victory, and the people, with one accord, assembled as in solemn festival, to rejoice over the fall of the great and terrible beast

From the tower came forth the king and queen, clad in worn and sober garments. Grave nobles attended them, and a band of young men, bearing laurel boughs, followed in glad procession. Headed by the king these made their way to the Red-Cross Knight, and, prostrating themselves before him, loudly proclaimed him their lord and patron, casting their laurels at his feet.

As they did so, there issued from the brazen gate maidens adorned with garlands, bearing sweet-sounding timbrels, and dancing as they went, while with them were children who sang to the maidens' music.

This second procession wended its way until it came where Una stood, and there they stayed and sang aloud her praises, and set a green garland on her head, crowning her "'twixt earnest and 'twixt game."

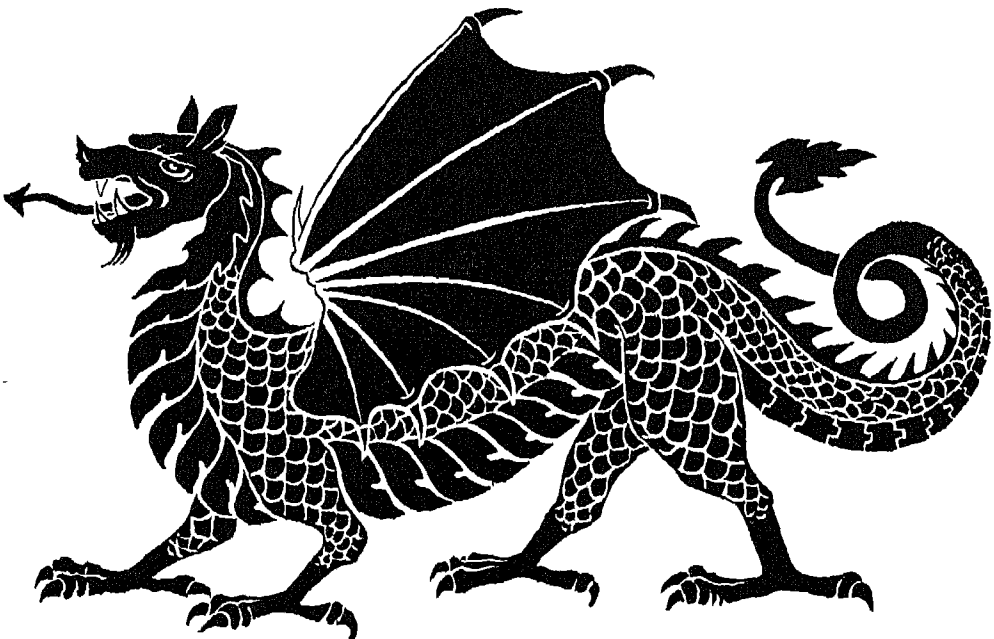
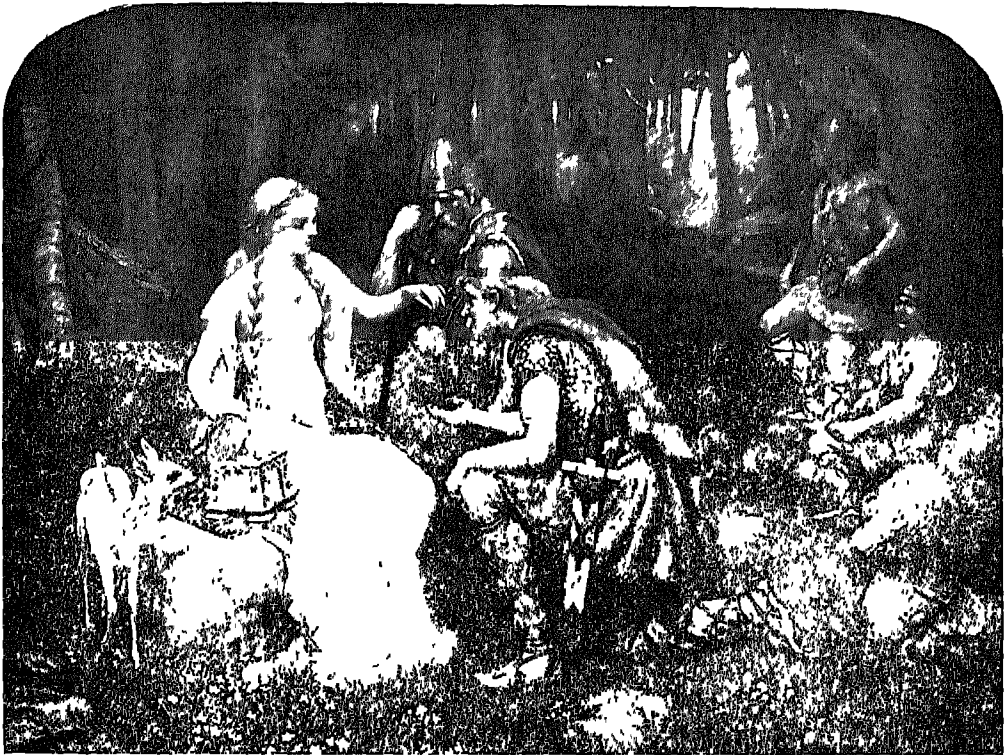
Last of all came the mob, hurrying to see the dragon-slayer, whom they looked upon as sent from heaven, and at whom they stared with gaping wonder. But when they arrived where the dead dragon lay they were filled with fear. Some, indeed, were so terrified that they fled away; others pretended to conceal their fear, while one who wished to be thought wiser than all the rest, suggested that the dragon might not be really dead. At this another immediately declared that he could see fire sparkle in his eye, while a third was persuaded he had seen the monster wink. Others, more bold, stood near its carcase, in order to measure how many acres it covered.

Thus the people flocked about the dead dragon, while the king and his train were entertaining the knight with gifts of ivory and gold. After thanking him a thousand times, and embracing their fair daughter Una, the king and queen conducted them to the palace, while the people strewed the way with their garments and shouted aloud for joy.

Now when the Red-Cross Knight had rested and been feasted, the king and queen called upon him to relate the story of his adventures. Tears ran down their cheeks as they listened, and when he had ended, the king again welcomed him to the palace, and spoke of his resting there from all further toil. Then the king called for Una, his only daughter, and with his own hands betrothed her to the knight.

After this George was no longer known as the Red-Cross Knight, but as St George, the slayer of the dragon—the great Saint George whom England has made her patron saint.

Sentence making.

1. Tell why we think that Saint George was very brave.
2. Tell how Saint George was cured of his wounds
3. Tell all you can about a dragon.

3. IDUNA AND THE APPLES OF YOUTH

From the picture by J. Doyle Penrose] [*By permission of the Artist*

IDUNA AND THE APPLES OF YOUTH

LET the children examine the picture (No 148 in the portfolio) in silence, and then invite them to tell all they can about it.

How many people are there in this picture? Do you think it is a picture of long ago? Why? Where do you think the people are? Why is it so dark? On what is the beautiful lady sitting? What has she in her hand? What is the strange box beside her? Of what do you think it is made? What is inside it? Do you think her dress pretty? Of what stuff is it probably made? How is it fastened? How do you fasten your dress? What does she wear near her waist? Of what are belts generally made now? How does she wear her hair? With what is it bound? How are the men dressed? What do they wear on their heads? Have all the helmets wings? What weapons have the men? What is lying by a rock on the right hand side? Is the dress of the men under the trees the same as that of the others? How are their legs covered? What is the name of the little animal on the left? What flowers do you think are growing? Do you think that the men were happy with their presents? Do they look grateful to the lady? Who was the artist who painted this picture?

STORY

Through the thick branches of the great trees of the forest of Asgard walked a beautiful lady Her golden hair, in two long plaits, reached nearly to her feet, while her

lovely dress, with laced bodice, was lifted from the ground on one side by a belt of jewels. In her hand she held a casket, covered with precious stones, and a sparkling light shone around her as she walked

This lady was Iduna, the daughter of the Sun and Moon, who had given her a magic casket filled with golden apples. The wonderful thing about the casket was that it was never empty, for as soon as one apple was taken out another came in its place Then, too, they were magic fruit, which, when given to the old, would restore their youth and strength. So the old warrior gods came riding to Asgard to receive from Iduna the gift of the magic apples. When they arrived Iduna was seated on a rock in a grassy clearing of the forest. Beside her a graceful fawn was sniffing at the precious casket, while, with bright eyes, it watched the strangers in their shining coats of mail.

How stiffly they knelt before the fair Iduna! and how shaky were the hands stretched out to receive her gift! Immediately they felt the touch of the fruit, a swift change came over them. They were no longer bent and weary. Youth returned to them. They were straight and active once more. They bowed their heads, from which the snow of age had gone, in thanks to the lovely lady who had wrought this amazing change.

Time went by, and a great sorrow came upon the people of Asgard. Iduna was lost and no one could find her. Brage, her husband, who sang the most beautiful songs that could ever be heard, was so sad and lonely that he wept all day for his dear wife. Not alone was he in his grief, for the gods were growing old once more and there was no one to give them the apples of youth.

When Odin, the great Father of the gods, saw the unhappiness of his people, he determined to find out who was the cause of all this trouble Someone must have taken Iduna away so that they could steal the golden apples from the casket which she always carried with her But who could it be? Who, in Asgard, was wicked enough to do such a cruel thing? Odin sat long thinking. On his shoulders were perched two ravens, which came every day to tell him of all that passed in Asgard. The Father of the gods listened to each of them and then he sent for his brother Loki.

Now Loki was bad. He was so sly that when he did an evil deed, he hid it so cleverly that very seldom did any one suspect him But Odin's ravens, who flew everywhere, saw a great deal more than anyone else, and they had whispered a secret to their master.

Loki was very much frightened when he received the message to appear before his king-brother. He trembled and shook, for like most wicked people he was a great coward, especially when he feared that his badness had been found out

With downcast head he stood before the throne, and in a stern voice the Father of the gods spoke to him

"Loki," he said, "you are accused of stealing Iduna from her home here in Asgard My people suffer greatly because of her loss. Our enemies, the Giants of the Frost, are swarming over the country. Their arrows of ice and their storms of hail will soon destroy all living things. The gods are helpless, for they are too old now to have power and strength enough to defend us. Ruin is come upon us because of the loss of Iduna and her casket Hasten, then, confess where you have hidden her, so that we may have her restored to us. If not, Thor shall strike you with his lightning."

Loki was so scared that he stammered out the truth. It seemed that one day he walked far beyond Asgard, on and on into the country, until he was quite weary He had been so occupied in plotting and planning wickedness that he had not noticed where he was going Before him lay a grove of oak trees, and he decided to rest for a while under one of the trees before retracing his steps. He had been sitting only a few minutes when in the blue sky he saw an eagle flying towards him In an instant

it swooped down and seized him in its sharp talons Then Loki knew that it was his enemy, the great giant, who had taken this form in order to capture him.

He screamed with fear as he was carried up into the air, while the sharp talons pierced him through and through Mad with pain, he promised to give the eagle anything that was in his power, to obtain his freedom Then the crafty giant, who hated Odin and all the gods of Asgard, said, "I will grant you your life on one condition. Iduna must be given to me."

Loki, being a coward, eagerly agreed to this plan and was set free. When he was once more safe in Asgard, he went to see Iduna. She was alone, for Brage had gone to a great meeting of the gods to sing some of his wonderful songs. With soft words Loki enticed the gentle lady to go with him beyond Asgard where the great ash tree grew. There among the branches the giant, once more in the form of an eagle, was waiting; and when he espied Iduna with Loki he flew down and carried off Iduna by her glittering belt.

Odin was terribly angry when he heard the story. In a voice of thunder he exclaimed, "Go you to the land of the giant and bring back Iduna, or Thor shall scorch you to death with his lightning." Shivering and shaking at the thought of once more putting himself in the power of the giant, Loki begged a boon from Odin. "Let me," he said, "have the power to change into an eagle, and let me have the power to change Iduna into a nut"

The favour was granted and Loki at once became an eagle, the better to reach the dominions of the giant There he found Iduna, fastened with chains to a tree, and weeping sorely because of the trouble she knew there must be in Asgard. Quickly he changed her into a nut, and taking her in his claws prepared to fly back to their home

At that moment there was a mighty flap of wings and the robber giant appeared. Quickly, as quickly as the lightning flashes from Thor's sword, Loki flew off with the nut held firmly in his claws

Then there was such a race in the air as can hardly be imagined Faster and faster they flew, Loki with the precious nut, and his enemy close behind

Nearer and nearer they came to Asgard. Loki screamed for help and Thor with his lightning brought down the giant scorched and dying, and with his mighty hammer made an end of him

So Iduna returned to Asgard and once more there was peace in the land The gods received her apples of youth and becoming young and strong again they drove away the fierce Frost Giants. The snow and ice melted and there was sunshine and warmth in Odin's dominions.

Sentence making.

1. What do you know about the magic apples?
2. Tell how Iduna was stolen from Asgard.
3. Tell how Iduna was brought back to Asgard.

4. THE LAMENT FOR ICARUS

From the picture by Herbert J. Draper] [*By permission of the National Gallery.*

THE LAMENT FOR ICARUS

LET the children examine the picture (No 149 in the portfolio) in silence, and then invite them to tell all they can about it.

At what are the three women looking? On what is the young man lying? To what are his arms fastened? What do you think has happened to him? Where do you think the maidens live? (They are sea nymphs) What is one of them holding in her hand? What can you see at the foot of the rocks? How do people fly now? What might the

sea nymphs have thought was lying on the rock? (A large bird.) What is one of them trying to do? Who painted this picture? Where can the original painting be seen? What was the young man's name? Is it an English name? What is a "lament"?

STORY

This is the wonderful story of a young man named Icarus who long, long ago flew with the wings of an eagle high upwards towards the sun

In the old days when Greece was in its glory, a king called Minos reigned in Crete He governed his people wisely, and made good laws to help them to live peaceably together. He founded a fleet of ships, not only to defend his island but also to enable his people to trade with other countries.

Being so clever himself, Minos was always searching for those who could add to his knowledge. He invited builders and artists to come to Crete to show him their wonderful work One of the most important of these was Dedalus, a clever artist and builder, who adorned his buildings with fine statues and beautiful designs.

When the first Cretan ships were made, it was Dedalus who fashioned the sails for them, so that the winds should carry them along like white winged seagulls on the crest of the waves Dedalus made a wooden cow for the queen This was so lifelike that when it was placed in a meadow near the palace a country maid came running along with a pail in her hand for the milk she expected it to give.

Now in the country of Crete there lived a terrible monster called the Minotaur. It was half a man and half a bull and so fierce that everyone fled before it, for it killed all who came near it. No one had been able to destroy it, for only a man possessed of a magic sword would ever be able to do so. Worse than all, every nine years seven handsome youths and seven beautiful maidens had to be given to the beast to satisfy its hunger.

Minos, the king, ordered Dedalus to make a den among the rocks for the Minotaur, so that it should no longer prowl through the land. Dedalus made a wonderful maze or labyrinth. Hundreds of winding passages were cut in the rock so cleverly that a stranger who entered the labyrinth could never find his way out again. There in the winding passages he was in the power of the Minotaur, and perished miserably.

Dedalus did not spend all his time on building and sculpture. He longed to be able to fly in the air with wings like a bird. Day after day he thought of this, and for a long time watched the flight of birds to see how they used their wings to fly. Over and over again he tried to find out their secret, but without success

His young son, Icarus, would listen intently when his father talked to him of his hopes. "When you have found out the secret, my father," he said, "we will fly away together and visit all the islands that lie in the great sea. We will mount up high in the clouds so that we can visit the sun and the golden land that is seen in the west when evening comes"

His father promised that the boy's wish should be granted, and he worked night and day to make wings with which he could fly. One day Dedalus fastened a grand pair of wings on his shoulders, and, wonderful to tell, found that at last he was able to fly. Like a bird he circled round and round, and then mounting higher flew far above the highest trees into the soft white clouds

His joy was very great, and Icarus clapped his hands as he saw his father flying upwards like a huge bird. However, it was not long before a great trouble came to them both. Dedalus had been so busy learning the way to fly that he had neglected the king's work Minos had entrusted him with the task of adorning a new council chamber with paintings of flowers and animals, such as Dedalus alone could do. The work was to be finished for a great festival that was to be held. The time was drawing near and Dedalus had forgotten all about his work.

He knew it would be impossible to do such delicate painting in a short time, and he dreaded the king's anger. Perhaps it would mean a terrible death for himself and his son. They might even be cast to the Minotaur. The only thing to be done was to fly out of the country, away from the punishment that would most certainly come to them if they stayed Dedalus called his son and told him what had happened

"Icarus," he said, "the danger is great. We must go quickly. We will put on our wings and fly away over the sea to Sicily. There we will stay till the king's anger has passed." Icarus agreed. Like most boys he was longing to see other lands, and he was not at all frightened to travel in such a way. He trusted his father and felt sure that he would be safe.

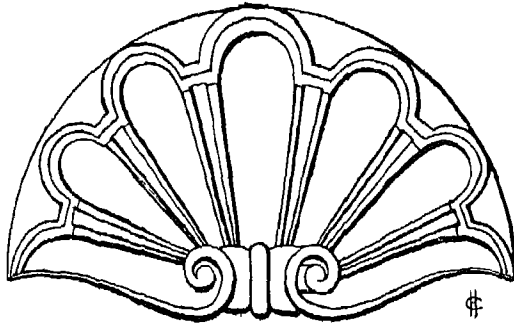
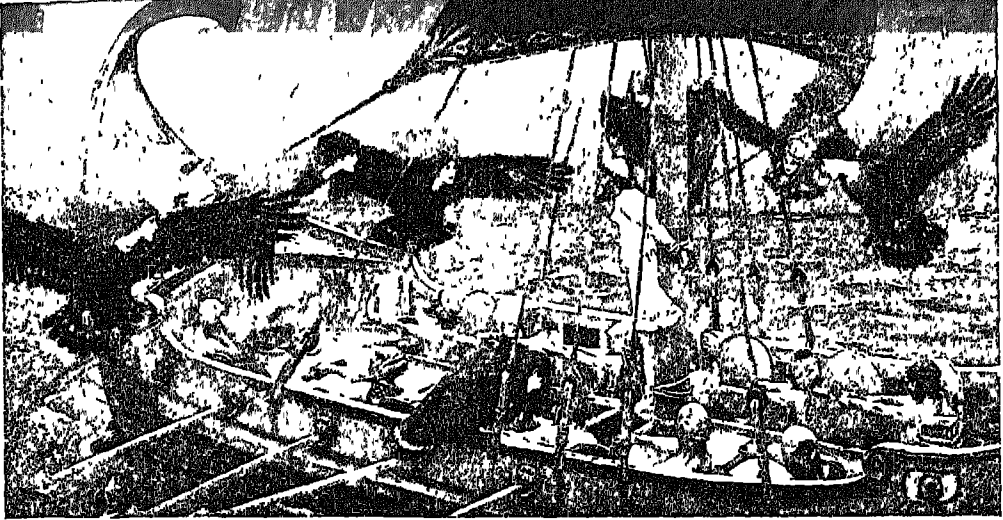
Dedalus fastened with wax on the boy's shoulders the beautiful wings that had once belonged to a great eagle. Then he put on his own wings and lightly they mounted into the air Over the sea they sped, but young Icarus, growing bold, flew higher towards the sun Graceful as any bird he sped along in its shining beams. But his wings were fastened by wax to his shoulders and as he flew upwards the hot sun melted the wax. His beautiful wings fell off, and poor Icarus dropped far below into the deep sea His body was tossed hither and thither by the waves, which at last cast it upon a rock where the sea nymphs lived.

The wind carried the eagle's wings along until they too came to the rocky island. Gently the sea nymphs lifted the body of Icarus all dripping with water and covered with seaweed, and making the eagle's plumage into a downy bed they laid the body upon it His arms they put through the straps of leather which Dedalus had so cunningly made, and there Icarus lay, as if sleeping.

Then the sea nymphs sang a song telling of his youth and beauty They lamented his loss in such sweet melodies that the breezes carried the strains to Dedalus and soothed his sorrow.

The island on which Icarus was cast was ever after called Icaria, and the sea was called the Icarian Sea, so that the flying boy should never be forgotten

Sentence making.

1 Tell why Dedalus is famous
2 Tell how Icarus was killed
3. Tell all you can about the sea nymphs

5. ULYSSES AND THE SIRENS

From the picture by J W Waterhouse, R A] [*By permission of Mrs J W Waterhouse*

ULYSSES AND THE SIRENS

LET the children examine the picture (No 150 in the portfolio) in silence, and then invite them to tell all they can about it.

In what ways is this a strange picture? What do you notice about the man standing up in the centre of the ship? Does he look like an Englishman? How is he dressed? What do you think the birdlike women are doing? Does the man look as if he is trying to get away from the mast of the ship? Do the men who are rowing take any notice of the birdlike women? Look at the head-dress of the men and tell what you notice about it. What do you see beyond the ship? What birds do you know that live on rocks beside the sea? Where do you think these birdlike women live? Tell all you can about the ship.

STORY

You already know how the cunning Ulysses helped the Greeks to build the Wooden Horse so that they were able to take the city of Troy (See History section, page 47) The war, you will understand, lasted ten long years and then Ulysses and his companions began their journey by sea to the island of Ithaca, where Penelope was waiting patiently for her husband Ulysses had many wonderful adventures on the way home and this picture portrays one of the most wonderful. He had already been warned that near an island by which his ship would pass there lived some beautiful creatures called Sirens These creatures had the heads of lovely women and the feathered bodies of birds. The sirens sang like women but with bird-like voices, their songs were the sweetest that ever man could hear They were enchanted songs, too, for all who heard them were drawn nearer and nearer to listen Sailors passing by in ships, seeing the women-birds and hearing their sweet songs, were certain to land on the island, and immediately they stepped from their vessel on to the shore they died The island was

white as ivory with the bones of those who had fallen into the power of the Sirens

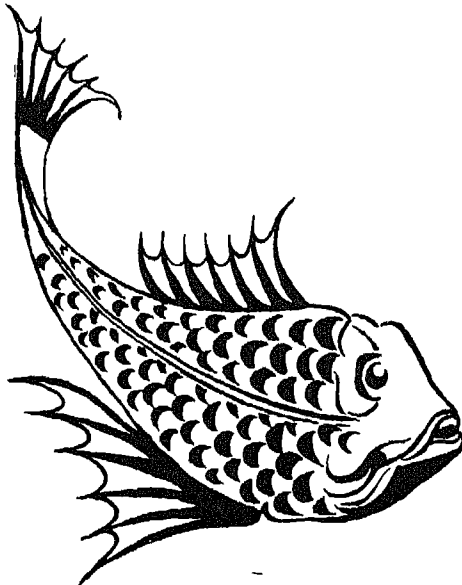
Now Ulysses, as you know, was a clever man He knew that if his men heard the songs of the Sirens they would be lured nearer and nearer to the island and then they would land and all would be lost. He knew too that even he himself could not resist the singing of the beautiful creatures, so he thought of a clever plan to save his men and himself First he ordered his men to fill their ears with wax so that they could not hear the singing; then he ordered them to bind him tightly to the mast of the ship so that he could not get away. "No matter how I plead or command," he told them, "you must not set me free until we have safely passed the island"

The sailors obeyed Ulysses was firmly fastened to the mast of the ship and then, the men bending to their oars, the ship flew like a white bird past the island of death They did not go swiftly enough, however, for the Sirens saw them. Sweetly they sang their wonderful melodies Softly and tenderly they begged Ulysses to rest awhile In song they urged him to taste the delightful foods that they could offer him.

Then, when they saw the ship sailing on, they surrounded it with flapping wings, while with marvellous sweetness they pleaded to them to stop and rest It was all so wonderful that Ulysses could not restrain himself. The charm was greater than he could bear. With frantic cries he begged his crew to unfasten the cords that bound him, but as their ears were stopped they heard nothing He made wild signs to them to wait and listen to the Sirens' voices They took no heed of him, however, but sped on. What a terrible trial it was for Ulysses, as he strained to break away from his bonds! But how thankful he was afterwards that his men had so faithfully obeyed him

As the ship sailed away he heard the last songs of the Sirens, now changed into a wail of disappointment, and he knew that the danger was over Then the sailors unbound Ulysses and took the wax from their ears The Sirens had lost their victims this time, their songs had been in vain.

Sentence making.

1 Tell all you can about the Sirens.
2. Tell why Ulysses let his men fasten him to the mast of his ship.
3 Tell how the sailors got safely past the Sirens

6. ORPHEUS AND HIS LYRE

ORPHEUS AND HIS LYRE

LET the children examine the picture (No 151 in the portfolio) and then invite them to tell all they can about it

STORY

The story of Orpheus is a very, very old one that was told to boys and girls of Ancient Greece, long, long ago. Orpheus was a great musician His mother, the goddess Calliope (the Beautiful Voiced) had taught him to sing and play upon the lyre when he was a little boy As he grew to youth and manhood, there was no one in the world whose music could be compared to his in charm and excellence.

"Orpheus is singing!" the wild beasts roared, and, leaving their dens, they sought the spot where the master musician played

"Orpheus sings!" murmured the deer and other timid animals Forgetting their fear, they, too, sought out the singer

"Hark, Orpheus is singing!" chanted the birds They flew in silence to where he sat, listening to the voice that surpassed that of the finest singer in the feathered world

"This is Orpheus singing!" said the flowers, lifting their lovely blossoms to catch each wondrous note.

One day, as Orpheus wandered singing and playing beside a stream, he met the nymph

Eurydice. She was so beautiful that Orpheus stopped his music to gaze on her. "I love you, Eurydice," he sighed. "Will you marry me?"

"I love you, too, Orpheus," replied Eurydice, smiling. "Never have I heard music so wonderful as yours."

So Orpheus and Eurydice were married. They were very happy as they wandered together through the sunny meadows and leafy woods of Greece. Then one day Eurydice was bitten by a poisonous snake, and, sad to say, she died.

"Eurydice, Eurydice! Come back to me!" cried poor Orpheus. He was so distressed that he could no longer play and sing. "Where are you, Eurydice? Where are you, Eurydice?" was his mournful cry.

The Ancient Greeks believed that when people died they went to a country beneath the earth to live with Pluto, the King of the Underworld. "I, too, will go to the Underworld," said Orpheus. "I will beg King Pluto to allow Eurydice to come back with me."

A long and dangerous journey lay before the dauntless musician. When he had found the entrance to the Underworld, a huge cave in a steep cliff-side, he entered boldly into the gloom beyond. Down, down he went, until at last he came to a sluggish, black river.

"This is the Styx," said Orpheus. "Nine times it encircles the Underworld, the Land of the Dead. Somehow I must get across."

As Orpheus stood on the river-bank wondering how he could cross, he saw a boat approaching through the gloom. "Go back, rash man!" exclaimed Charon, the Ferryman. "No living man may cross this river."

Then Orpheus, knowing the power of his music, began to play and sing. When Charon heard that magic music, he brought his boat close to the bank and rowed Orpheus across the gloomy Styx.

King Pluto's palace now stood before Orpheus, but the entrance gate was guarded by Cerberus, the three-headed dog. When the creature saw the stranger it opened its three huge mouths, and barking with a sound like thunder, it prepared to spring.

"Quiet, Cerberus!" said Orpheus, as he began to play his lyre.

Again his magic music proved its worth. The terrible three-headed dog sank down in silence, and Orpheus passed safely by.

Soon he was inside the palace and, groping his way along the dimly-lit corridors, he came at length to the dark hall where King Pluto sat upon his jet-black throne.

"What are you doing here, live man?" demanded the King.

"I have come to seek my wife, Eurydice," Orpheus replied. "I pray you let her come back to me."

"That is impossible," said the King. "Eurydice is dead."

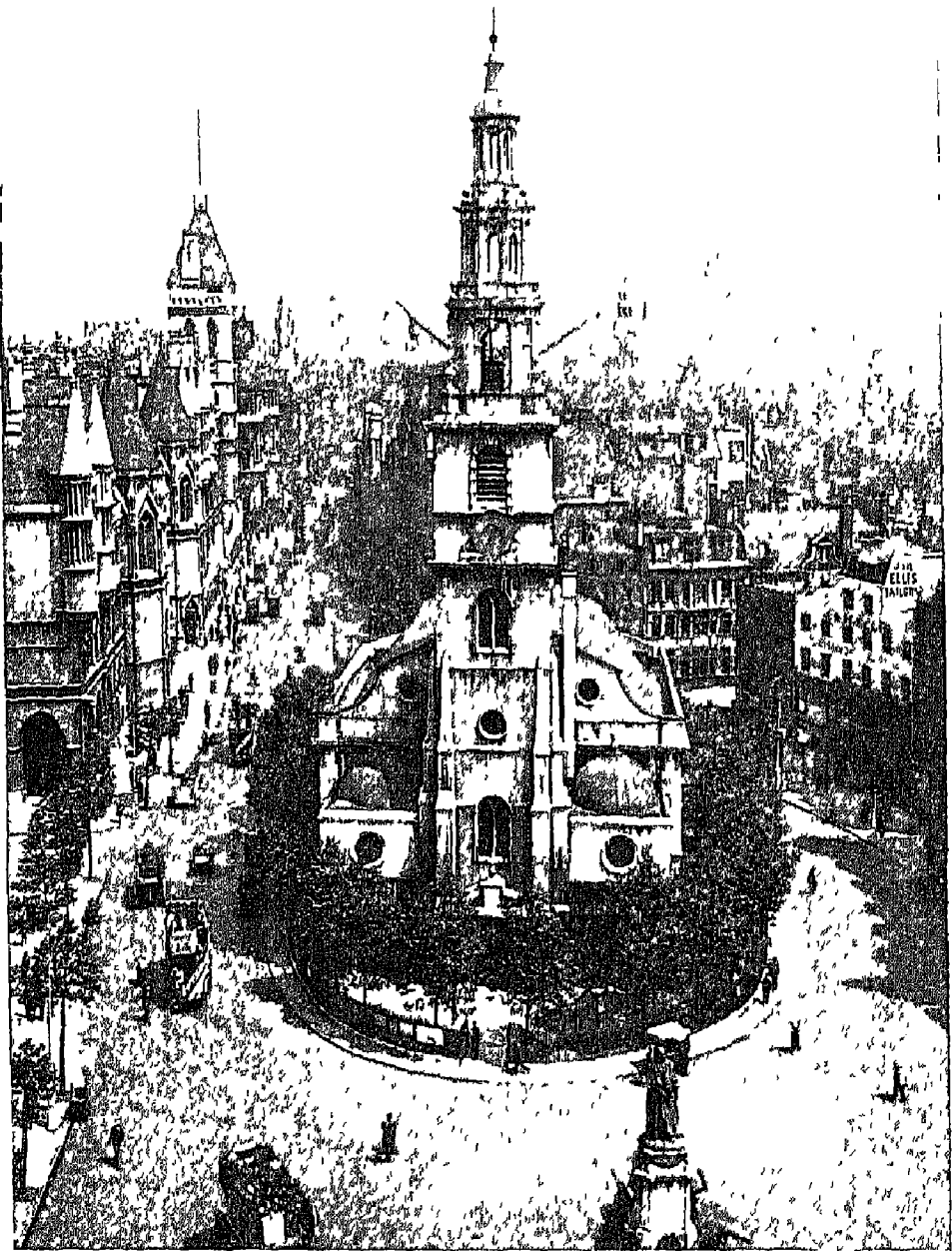
Again Orpheus began to play and sing, and again the magic of his music worked. King Pluto's face grew kinder and his voice softer. At length he said, "I grant your request, Orpheus. You may have Eurydice back, but remember this: should you look on her face before she is upon the earth, she must return to me, and never while you are alive will you see her again."

Brimming over with joy, Orpheus turned round at the King's command. "Eurydice is following," King Pluto said.

Out of the hall walked Orpheus and along the corridors, playing and singing as before. After him came Eurydice. Orpheus longed to turn to look at her, but he remembered what King Pluto had said. His magic music took them safely past Cerberus, and Charon rowed them across the Styx. Then began the steep upward climb to the earth above.

Up, up strode Orpheus. How hard was the climb! How he longed to give Eurydice a helping hand! Suddenly a great fear beset him. Suppose Eurydice was not following after all? The next moment he had turned to see. There were three bright flashes of blue lightning, and three loud peals of thunder. "Oh, Orpheus, what have you done?" Eurydice cried in agony. "Farewell!" And in a moment she was gone.

Poor Orpheus! He did his best to get Eurydice back again, but this time his efforts failed. Then his music lost its magic power, and for many a long year he wandered sad and lonely about the earth.

SECOND YEAR'S COURSE
OF
COMPOSITION

[*Photograph*: *D. McLeish*

LOOKING UP FLEET STREET FROM ST CLEMENT DANES

[*This church was almost completely destroyed by enemy aircraft in* 1940]

THE SECOND YEAR'S COURSE OF COMPOSITION

INTRODUCTION

THE teacher will find it helpful to read the *Introduction* to The First Year's Course of Composition which begins on page 169 of Volume I The plan of the lessons for the second year follows closely on that of the first year Here are set out a collection of selected stories which the teacher can first read to the children and afterwards utilise for oral and written exercises The exercises are carefully graded to cover a simple course of grammar and composition. (See Contents) A list of words, arranged in groups for spelling and composition, is included at the end of the lessons. The exercises marked with an asterisk at the end of each section are a little more difficult than others in the course They are intended for those members of the class who are sufficiently far advanced to write simple sentences without assistance

1.—THE STORY OF THE DANDELION

(Capital Letters and Full Stops)

INTRODUCTION

A SHORT talk on the home, dress and mode of life of the Red Indians forms a pleasing introduction to this lesson A comprehensive account of these people is given in the geography section, and a blackboard sketch of a Red Indian smoking a peace pipe is shown on page 273 of this volume Mention should be made of the peace pipe, which Shawondasee smokes as he lies in the sun A reference to *Hiawatha* as the source of this story will provide a setting for the study of the lesson (see descriptive geography Chap I) The children should understand that the south wind is warm and blows from the south to the north, while the north wind is cold and blows from the north to the south Explain the meaning of a prairie,—a vast grassy meadow See that the children realise the significance of the change in colour of the

maiden's hair from yellow to white Encourage them to tell all they have noticed about a dandelion before proceeding with the reading Many children may have puffed away the feathery seeds of a dandelion to the familiar words· "She loves me, she loves me not." The name dandelion is derived from the French *dent de lion* (lion's tooth), an appellation given on account of the toothlike lobes of the leaves.

Story

The Red Indians who live in America tell a charming story about the dandelion In the far south where the summer never ends, lives Shawondasee, the South Wind Shawondasee is a fat and lazy man, all day long he lies in the warm sunshine, listless and careless. The smoke from his pipe fills the air with a soft haze, smoothing the outline of the rugged hills.

Once as Shawondasee lay gazing northward, he saw far away on the prairie a maiden standing all alone. She was tall and slender, clad in robes of brightest green, and her hair was coloured yellow like the rays of the sun As Shawondasee looked upon her, he loved her Day by day he lay and gazed at her and sighed with love But he was too fat and lazy to bestir himself and woo her.

One morning when he looked northward he saw that the maiden's yellow hair had turned white The lazy Shawondasee was heartbroken, for he thought that his brother, the cold North Wind, had laid his icy hand upon her and turned her tresses white with snow. Shawondasee sighed so heavily with sorrow that the white locks of the maiden were all blown away, and the air seemed full of snowflakes. The maiden had vanished for ever

Poor Shawondasee did not know that he had loved no maiden, but a prairie dandelion, whose white feathery head he had puffed away with sighing Still he sits and sighs for his loved one with the green robe and the yellow hair

Oral Work

Where do the Red Indians live?
What do you know about Red Indians?
What does the beginning of the story tell you?
Who is Shawondasee?
Describe Shawondasee.
How does Shawondasee spend his time?
What does the middle of the story tell you?
What is a prairie?
What did Shawondasee think he saw on the prairie?
Why did he sit and sigh?
Why did he not go to the maiden and woo her?
What change did he see in her?
What did he think had happened?
How did the maiden lose her hair?
What does the end of the story tell you?
Retell the story.
Children ask questions.

Written Work

I. **Children's drill.**

Write your name. Write the date.

Dictation—The South Wind still sits and thinks of his dear one with the green robe and the yellow hair.

II **Exercises on capital letters.**

Definition—Names of people, places, days and months begin with capital letters The single letter *I* is always a capital.

A. Write on the blackboard:

1. The people who tell this story are called red indians.
2. The red indians live in the country of america.
3. The man's name was shawondasee
4. He sat and gazed at the maiden from monday to saturday
5. On sunday morning he found that her hair had turned white

6. Now he sits from january to december sighing with sorrow
7 But i think shawondasee was very foolish.

The children must rewrite these sentences, putting in the capital letters.

Definition—A sentence begins with a capital letter and ends with a full stop.

B Write on the blackboard

1. the maiden was standing alone on the prairie
2. she was tall and slender
3 she was dressed in robes of brightest green
4 her hair was coloured yellow like the sun's rays
5. one morning her yellow hair had all turned white
6. the maiden was really a dandelion

The children must rewrite the above sentences, putting in the capital letters and full stops

C Write on the blackboard:

1 the boy next door has three sisters, may, mary and lucy
2 i hope i shall win a prize this term
3. on monday my brother john is going away
4. we have our summer holidays from june to august
5 betty said i had taken her ball
6 on saturday henry and i always play cricket

The children must rewrite these sentences correctly.

III * **Sentence making.**

Tell in one sentence how Shawondasee spent his time

Describe the maiden that Shawondasee thought he saw

Tell in one sentence what change came over the maiden

2.—THE LION IN LOVE

(Subject and Predicate)

INTRODUCTION

THIS story will require little explanation. Run over with the children the characteristics of the lion, which are those of the cat,—strong teeth and sharp claws; a cat could not catch mice without her claws and teeth. The lion lives in the forest, and therefore would be most likely to meet a woodman. See that the children realise what is the occupation of the woodman, and the use of his axe

STORY

Once a lion fell in love with the beautiful daughter of a poor woodman He went to her father and said, "My dear sir, I wish to marry your lovely daughter. Will you give your consent?"

The poor woodman was most surprised and perplexed. He did not know what to reply, for though he could not bear to give his only daughter to be the wife of a lion, yet he dared not offend so powerful an animal

At last he said to the lion, "My daughter is very young and timid, and you are so strong and fierce that you would not make a good husband for her. However, if you will first have all your teeth drawn out and your nails cut, you shall have her, for then she will no longer be afraid to marry you."

The lion was so much in love that he agreed. His teeth were all drawn out and his nails were cut off Then, when the woodman saw that the lion was powerless, he killed him with his axe, and so rid his daughter of an unwelcome husband

ORAL WORK

What does the beginning of the story tell you?

To whom did the lion go?

What did the lion wish?
What does the middle of the story tell you?
Why did the woodman not reply at once?
Why was the woodman afraid to offend the lion?
What do you think would have offended the lion?
Tell what the woodman replied.
What did the lion agree to do?
What does the end of the story tell you?
Retell the story
Children ask questions.

WRITTEN WORK

I **Children's drill.**

Write your full name Write the date Write the names of this month and the next.

Dictation—The lion was so much in love that he agreed to have his teeth drawn out and his nails cut off.

II **Exercises on subject and predicate.**

Definition—Every sentence is made up of a naming-part (or subject) and a stating-part (or predicate)

A Write on the blackboard

The daughter	fell in love
His nails	did not know what to reply
A lion	was very young and timid
The woodman	were drawn out.
His teeth	were cut off

The children must put the correct naming-part (or subject) with each stating-part (or predicate).

B Write on the blackboard

1. The bird ——
2. The train ——.
3. The boat ——
4 Water ——.

The children must supply a stating-part (or predicate) to each of these sentences

C Write on the blackboard·

1. —— wished to marry the woodman's daughter
2 —— killed the lion with his axe.
3. —— are seen in the field in spring
4 —— is the hottest month of the year.

The children must supply a naming-part (or subject) to each of these sentences

III. **Sentence making.**

Tell in one sentence why the lion went to see the woodman.
Tell what the woodman told the lion
Tell why the woodman's daughter did not marry the lion.

3.—THE HANDSOME STAG

(Nouns)

INTRODUCTION

A BLACKBOARD sketch of the head of a stag to show his antlers is given on page 273. Probably many children will have seen their reflections in pools, question them as to what condition the water must be in to give a distinct reflection,— it must be clear and still Country children will be acquainted with hunting in many districts, but to others this will need explanation A blackboard sketch of a huntsman's horn is given on page 273 It is the duty of the huntsman to lead the chase, the horn is used as a signal to the hounds, telling them what to do The hounds are a special breed of smooth-coated dog, and must be very well trained for scent and speed They have a curious voice which is known as "baying"

STORY

A stag was one morning drinking at a forest pool, when he caught sight of his reflection in the clear water

"What a handsome beast I am!" he thought "My antlers branch from my head like young trees, my neck is strong, my coat is smooth and glossy, my eyes sparkle like stars I am a fine fellow! I only wish my legs were more shapely They are so long and thin that I am ashamed of them."

Just then the stag heard the sound of the huntsman's horn, and the voices of the hounds He dashed away through the forest, borne swiftly along by the long thin legs that he scorned Gradually the forest grew thicker, till at last his great spreading antlers caught in the branches of a tree He strove madly to escape, while the baying of the hounds drew nearer and nearer. Alas! his struggles were in vain, his antlers held him fast and he was caught by the huntsman and his hounds

"How foolish I have been!" cried the dying stag. "I see now that my splendid horns are the cause of my death, while my thin legs would have saved me!"

The things we prize most are not always the best for us

ORAL WORK

What was the stag doing at the beginning of the story?

What did the stag do in the middle of the story?

What happened to the stag at the end of the story?

Which part of himself did the stag prize most?

Why did the stag run away?

How was he held fast in the forest?

Which parts of himself did the stag find to be of most use to him?

Why did the stag say he had been foolish?

Retell the story.

Children ask questions.

Written Work

I. **Children's drill.**

Write your name Write the day of the week. Write the name of the story.

Dictation.—The things we prize most are not always the best for us.

II **Exercises on nouns.**

Definition —A name-word, or noun, is the name of something.

A Write the following on the blackboard: *antlers, trees, eyes, stag, death, water, hounds, coat, legs, pool.*

A —— came down to a —— to drink and saw himself in the ——. He admired his spreading ——, his smooth —— and his sparkling ——, but he felt ashamed of his ——, they were so long and thin. When he was forced to run away from the ——, however, he found his long —— were very useful, while his —— became caught in the —— and were the cause of his ——.

The children must write and complete the above story, using the name-words (or nouns) from the given list

B. Write the following on the blackboard

1. The huntsman chases the (pig, stag, cow)
2. The huntsman blows a (whistle, trumpet, horn)
3. (Donkeys, Dogs, Rabbits) are used for hunting
4. A donkey has long (hair, whiskers, ears).
5. The (nose, coat, eye) of a horse is smooth and glossy.

The children must write and complete the above sentences with the appropriate name-words (or nouns).

III * **Sentence making.**

Describe a stag

Write two sentences about hunting

Tell how the stag met his death.

4.—THE FOX AND THE ASS

(Verbs)

Introduction

RUN over with the children the characteristics of the lion, the ass and the fox. Bring out in particular the stupidity of the ass contrasted with the astuteness of the fox There is a blackboard sketch of an ass in a lion's skin given on page 273. Explain why the lion is called "the king of the beasts"

Story

An ass one day found a lion's skin. He wrapped himself in it and pretended to be the lion himself. He ran about the forest in his new coat, frightening the other animals As soon as they saw him they fled in terror, for they thought he was really the king of the beasts.

Presently the ass met a fox. Anxious to frighten him too, the ass rushed at him and tried to roar. But the fox stood quite still, with a grin on his face

"My friend," said the fox, quietly, "if you had only kept silent, I might have thought you were a lion as the other animals did Directly you began to bray, I knew you for what you are—a donkey"

We must mind what we say, as well as what we do.

ORAL WORK

What does the beginning of the story tell you?

What is another name for an *ass*?

Whom did the ass pretend to be?

What did the other animals think of him?

What did the other animals do when they saw the ass?

Who is the "king of the beasts"?

What does the middle of the story tell you?

Whom did the ass meet?

What did the ass do when he met the fox?

Why did the fox grin?

What does the end of the story tell you?

What do we learn from this story?

Retell the story.

Children ask questions.

WRITTEN WORK

I Children's drill.

Write the date Write the name of the story. Write a name for the ass.

Dictation.—We must mind what we say, as well as what we do.

II. Exercises on verbs.

Definition—The chief word in the stating-part (or predicate) of a sentence is called the stating-word (or verb).

A Write on the blackboard:

Lions	buzz
Cocks	mew
Bees	burn.
Clocks	roar.
Cats	bark.
Dogs	tick.
Fires	crow.

The children must put the correct stating-word (or verb) with each name-word (or noun)

B. Write on the blackboard: *frightened, stood, found, met, thought, ran.*

One day an ass —— a lion's skin. He —— about the forest and —— all the other animals. They —— he was really the lion. Then the ass —— a fox. But the fox —— quite still with a grin on his face.

The children must write and complete the above passage with the correct stating-words (or verbs) from the list.

C. Write on the blackboard:

1. Donkeys (sing, bray, talk).
2. Lions (quack, cry, roar).
3. The ass (wrapped, kept, stood) himself in the lion's skin.
4. The ass (danced, rushed, rose) at the fox.
5. "You are a donkey," (kept, thought, said) the fox.

The children must write and complete the above sentences with the appropriate stating-words (or verbs).

III.* Sentence making.

Tell in two sentences how the ass pretended to be a lion.

Tell in two sentences how the fox found out that he was not a lion.

Tell what you know about a donkey.

5.—THE WISE MAID OF WESSEX

PART I

(Adjectives)

Introduction

IN connection with this story it will be necessary to tell the children that England was at one time divided into many kingdoms, each ruled by a particular king If it is convenient to do so, point out the kingdom of Wessex on the map, and the town of Winchester where King Ine is said to have had his palace There is a blackboard sketch of the Wise Maid holding a bundle of tow in her hand on page 273

Story

Long ago, in the south of England, there was a kingdom called Wessex It was ruled by King Ine, a brave and handsome man who had one great failing. He had a very bad temper He was ashamed of this fault, and made up his mind to marry some wise maiden who would cure him

One afternoon he rode out from his palace at Winchester into the great forest. Feeling thirsty, he stopped at a woodman's hut and asked for some milk. The milk was brought to him by the woodman's pretty daughter Edith The king drank it, and handed back the empty mug to Edith saying, "I am King Ine of Wessex If you can empty all the seas of the world with this mug, I will make you my queen."

Edith went into the hut and brought out a handful of tow, or loose threads of rope. This she offered to the king. "If you can stop up all the rivers of the world with this tow, I will do as you wish," she said

No woman had ever given him such a clever answer

"You are the wise maid for whom I am searching," said King Ine He set Edith on his horse before him and rode back to Winchester to make her his queen

Oral Work

Of whom does the beginning of the story tell you?

Of whom does the middle of the story tell you?

What does the end of the story tell you?

What great fault had the King of Wessex?

What did he make up his mind to do?

How did the king meet Edith?

What did the king tell Edith to do with the mug?

What did Edith tell the king to do with the tow?

Why did the king make Edith his queen?

Retell the story

Children ask questions

WRITTEN WORK

I **Children's drill.**

Write the day of the week Write the name of the month Write the name of the story.

Dictation—A wise maid makes a good wife. The king knew this, and chose the clever daughter of a woodman to be his wife.

II. **Exercises on adjectives.**

Definition—A descriptive-word (or adjective) tells you more about a name-word (or noun)

A. Write the following on the blackboard:

Great	man
Creamy	maiden
Handsome	forest
Loose	mug
Pretty	milk
Empty	threads of rope

The children must write the nouns with their correct adjectives.

B Write the following on the blackboard:

1. —— grass
2. —— cat
3. —— fairy.
4 —— sky
5. —— baby
6 —— hair

The children must supply an adjective to each of the above nouns

C Write on the blackboard: *brave foolish, wise, great, clever, handsome, bad*

King Ine was a —— and —— man, but he had one —— failing. He had a very —— temper He made up his mind to marry some —— maid who would cure him of his fault By her —— answer the king knew that Edith was fit to be his queen. If she had given him a —— reply he would not have married her

The children must write and complete this passage with adjectives from the given list

III * **Sentence making.**

Tell how the king met Edith.

Make a sentence telling what tow is

Tell why the king married a woodman's daughter

6.—THE WISE MAID OF WESSEX

PART II

(Synonyms and Opposites)

STORY

BEFORE Edith and King Ine were married, the bride said to her bridegroom, "It is well known that you have a hasty temper. If I should ever make you angry and you should send me back to my father, will you promise me that I may take a parting gift home with me?"

"Such a thing will never happen," said Ine. "I love you far too dearly to quarrel with you Nevertheless, if I am ever so foolish as to send you home, I promise that you may take with you whatever you value most."

Then the marriage took place and for a time all went well, until one day Edith disagreed with her husband. The king was so angry that he ordered her to return home That night Edith put some medicine into the king's wine, so that he fell into a heavy sleep Then she ordered the servants to carry him gently to her father's hut.

When the king awoke next morning he was amazed to find himself in the hut in the forest.

"Who brought me here?" he bawled in a great rage.

"I did," replied his wife, quietly. "You are my parting gift, and the treasure that I value most."

At her loving words, all the king's anger died

"Truly," said he, as he kissed her, "I am a fortunate man, for my wife is the dearest as well as the wisest maid in Wessex."

ORAL WORK

What did Edith say to the king before they were married?

What did the king promise his bride?

What happened one day?

What did Edith do before she left for her father's hut?

What did King Ine ask the next morning?

What did his wife reply?

What does the end of the story tell you?

Retell the story.

Children ask questions.

WRITTEN WORK

I. Children's drill.

Write your name. Write the date. Write the names of the last three days of the week Write the names of the first three months of the year.

Dictation—One day the king was angry with his wife. He ordered her to return to her own home in the forest. When she left, she took the sleeping king with her, who was himself her parting gift and the treasure she most prized.

II. Exercises on synonyms and opposites.

A. Write on the blackboard. *softly, prize, dropped, present, quick, shouted, silly*

1. King Ine had a hasty temper.
2. "I shall never be so foolish as to send you home," he said.
3. He fell into a heavy sleep.
4. "Who brought me here?" he bawled in a great rage
5. "I did," replied his wife, quietly
6. "You are my parting gift, and the treasure that I value most"

The children must rewrite the above sentences, replacing the underlined words with words of similar meaning from the list

B. Write on the blackboard: *great, cruel, small, lovely, weary*. The children must write words of similar meaning to these.

C. Write on the blackboard: *weak, long, wise, sour, smooth, heavy*

1. King Ine was foolish, but Edith was ——.
2. A tree trunk is rough, but glass is ——.
3. In England, summer days are ——, but winter days are short.
4. A man's arms are strong, but a child's are ——.
5. A purse is light to carry, but a trunk is ——.
6. A lemon is ——, but sugar is sweet.

The children must complete these sentences with words of opposite meaning from the given list.

D. Write on the blackboard *up, in, little, black, thick*

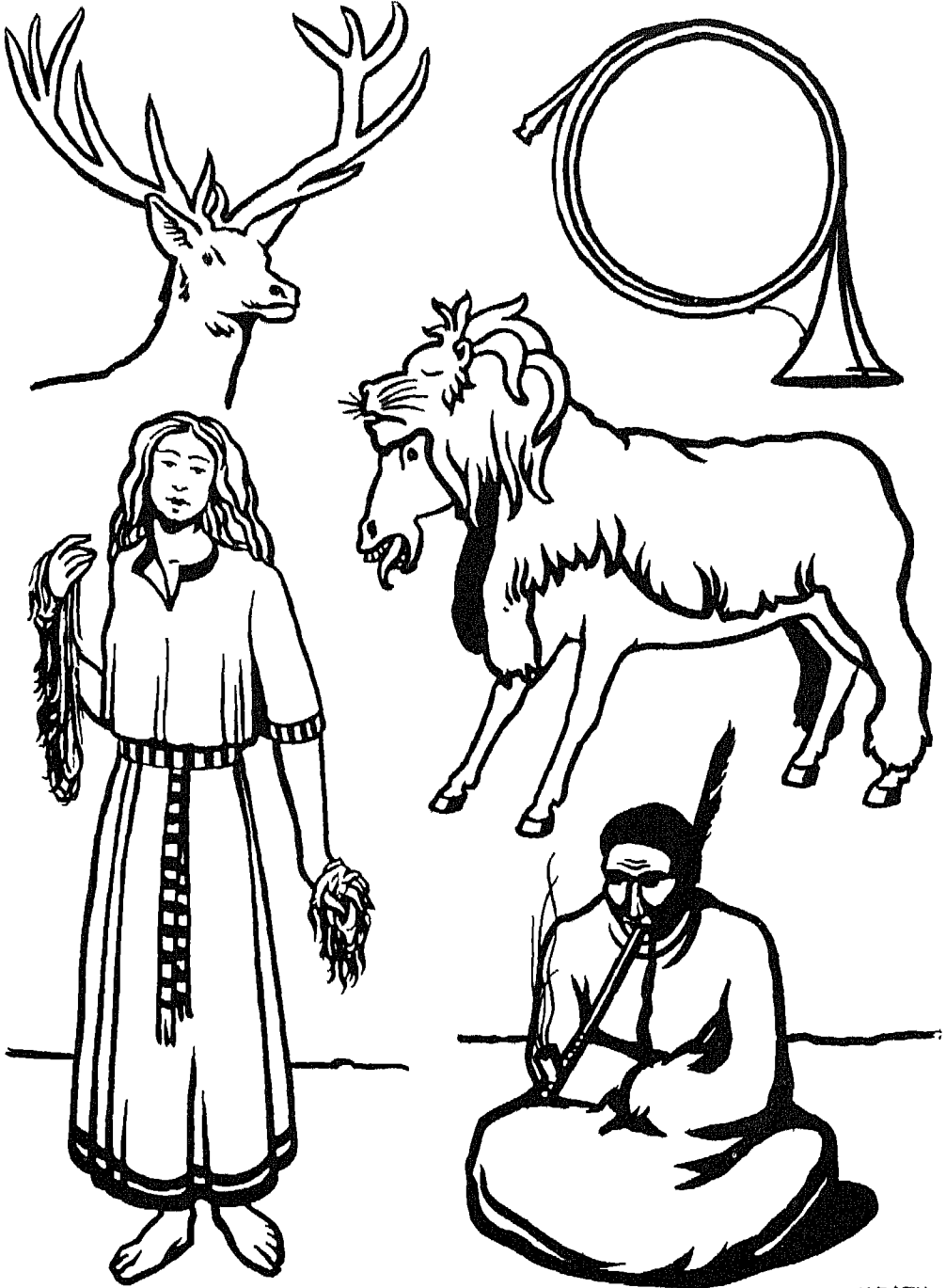
The children must write words of opposite meaning to these.

III. *Sentence making.

Tell what promise the king made to his bride.

Tell how Edith took the king to her father's hut.

Tell what you think happened after the king had forgiven his wife.

SKETCHES FOR THE BLACKBOARD

ANTLERS—*See page* 267
THE WISE MAID OF WESSEX—*See page* 270

HUNTSMAN'S HORN—*See page* 267
ASS IN A LION'S SKIN—*See page* 268
RED INDIAN WITH PEACE PIPE—*See page* 264

7.—THE GREEDY NOBLEMAN

(Simple Analysis)

Introduction

THERE is little in this story that children will not understand. The essential point of the story,—the motives of the two men in presenting their gifts to the king,—should be made clear, for children are appreciative of generous sentiments. It should be remarked that the king was delighted, not with the turnip itself, for he gave that away again, but with the kindly thought of the gardener The children will need to be told that an English crown is a five-shilling piece, which is now not minted Notice the synonyms in this story,—horse, steed; present, gift, large, great. There is a blackboard sketch of a turnip on page 283.

Story

There was once a king who was dearly loved by his subjects To show their love for him they would often bring him presents, the best that they could afford A certain poor gardener in his kingdom grew a very fine turnip, and he decided that this turnip would make a splendid gift for the king. It was so large that he could not carry it, but it had to be taken to the palace in a cart The king was delighted with the gardener's gift, and presented him with five hundred crowns as a reward

Now there was at the court a greedy nobleman. When he heard the story of the gardener's reward he said to himself, "If the gardener received five hundred crowns for his turnip, what a great treasure the king would give me if I brought him a valuable horse!" Going to his stables, the nobleman selected his finest steed, and took it to the king.

"I shall be greatly honoured if your majesty will accept this horse as a gift," said he.

"I am delighted to accept your gift," replied the king, "but pray allow me to make you a present in return" So saying, he ordered his servants to give the nobleman the great turnip he had received from the gardener. Thus the king punished the greedy nobleman, who had hoped to profit by his pretended generosity

Oral Work

What does the beginning of the story tell you?

What did the gardener decide to do with his turnip?

Why did the gardener give his turnip to the king?
How do you know that it must have been a very large turnip?
What did the gardener receive from the king?
Who heard what had happened?
What did the nobleman say to himself?
What did the nobleman do?
Why did the nobleman give his horse to the king?
What did the king say to the nobleman?
What does the end of the story tell you?
Retell the story.
Children ask questions

Written Work

I **Children's drill.**

Write the date Write the names of the first four days of the week Write the names of the last four months of the year

Dictation —A poor gardener had grown a very fine turnip The turnip was so large that a man could not carry it, and it had to be laid in a cart

II **Exercises on simple analysis.**

(This Lesson is a continuation of Lesson 2, page 266, where the definition and first exercises on subject and predicate are given.)

A. Write on the blackboard·

Naming-part (*Subject*)	*Stating-part* (*Predicate*)
The gardener	dearly loved their king.
The nobleman	was very large.
The king	took his turnip to court.
The turnip	was delighted with the gift
The people	was punished for his greediness

The children put the correct subjects and predicates together.

B. Write on the blackboard·

1 The children went out to play.
2 Little Jack Horner sat in a corner
3. Little Boy Blue lay under the haystack
4 Red Riding Hood took her basket
5 The king lives at Buckingham Palace
6 Birds build their nests in trees

The children must divide these sentences into subject and predicate.

C Write on the blackboard·

1 —— had grown a fine turnip.
2 —— rewarded the gardener
3 —— heard the story of the gardener's reward.
4 —— took his horse to the king
5 —— gave him the gift of the poor gardener.

The children must insert the subject to each of these sentences

D Write on the blackboard

1 Little Bo-Peep ——
2 Cinderella ——
3 Boys and girls ——.
4. Buttercups and daisies ——
5 My baby sister ——.

The children may finish these sentences in any way they please

III * **Sentence making.**

Make a sentence describing a turnip.
Make a sentence describing a fine horse.
Make a sentence telling why the nobleman is called *greedy*.

8.—THE FAT HENS AND THE LEAN HENS

(Singular and Plural Nouns)

Introduction

THIS lesson may well open with an informal discussion on hens and chickens,—where they live, what they eat, what they give us Many children will know the chief points to consider in choosing a chicken for the table Some will have

watched the cooking of a chicken, and all will have something to contribute on the subject of hens and eggs Encourage the children to say why a thin creature should be called a "scarecrow". It may be necessary to explain "scarecrow" to town children; there is a blackboard sketch on page 283.

STORY

A number of hens once lived together in a farmyard Some of them were plump, while others were lean The fat hens were fond of making fun of their lean sisters "You poor skinny things!" they would say. "You are more like scarecrows than hens" And they called them "rags and bones" and other rude names.

One day the farmer's wife came into the yard to choose some hens for her cooking pot "I will not have those thin birds," she said to herself, "for they are not worth eating. These fine fat hens, however, will make us a splendid dish" She caught up the fat hens and took them into the farmhouse

As they were carried into the kitchen to be killed and cooked for dinner, the fat hens wished that they had not been so foolish as to laugh at the lean hens, who were left alive and happy

Never laugh at those who seem poorer than you are

ORAL WORK

What does the beginning of the story tell you?

Why did some of the hens laugh at the others?

What used the fat hens to say?

Who came into the yard one day?

Why did she come into the yard?

What did the farmer's wife say about the lean hens?

What did she say about the fat hens?

What happened to the fat hens?

What happened to the lean hens?

What does the end of the story tell you?

Retell the story.

Children ask questions

WRITTEN WORK

I **Children's drill.**

Write the name of the story. Write the date Write the names of the hottest months of the year Write the names of the coldest months of the year.

Dictation —This story teaches us never to laugh at those who seem poorer than we are, for they may be more fortunate than we are in the end.

II. **Exercises on singular and plural nouns.**

A Write on the blackboard:

1 A name-word (or noun) which means two or more things usually ends in *s*

One thing	*Two or more things*
One hen	Two hens
One boy	Two ——
One coat	Three ——
One room	Four ——
One day	Five ——
One house	Six ——
One ball	Seven ——
One desk	Eight ——

The children must complete the list of simple plurals.

2 A name-word that is hard to say with *s*, takes *es* when it means two or more things.

One box	Two boxes
One inch	Two ——
One bush	Seven ——
One brush	Four ——
One glass	Twelve ——
One kiss	Two ——

The children must complete the list of plurals which take *es*

B. Write on the blackboard A name-word which ends in *y* (except *ay*, *ey* and *oy*)

changes the *y* to *ies* when it means two or more things

One lady	Two ladies
One fairy	Two ——
One fly	Nine ——
One penny	Eleven ——
One army	Two ——
One navy	Two ——

The children must complete the list of plurals

C. Write on the blackboard

One ass	Two ——
One pencil	Six ——
One boy	Three ——
One girl	Three ——
One puppy	Five ——
One bush	Nine ——
One pansy	Four ——
One fish	Eight ——
One hoop	Six ——

The children must complete the list of miscellaneous plurals

III * **Sentence making.**

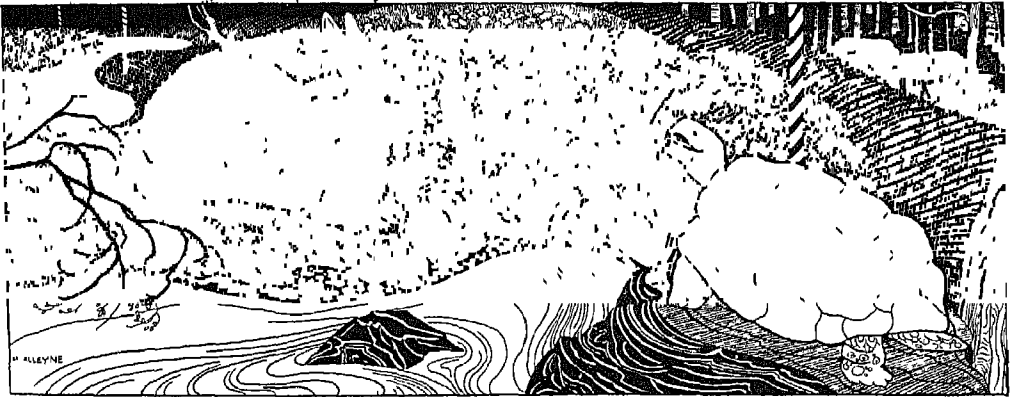
Describe the hens that lived in the farmyard

Which hens did the farmer's wife choose, and why?

Which were the luckier hens in the end, and why?

9.—BRER RABBIT AND BRER TORTOISE RUN A RACE

PART I

(Singular and Plural Sentences)

INTRODUCTION

THE children will be familiar with the rabbit, but few will have seen a tortoise It should be pointed out that not all tortoises can swim A blackboard sketch of the race between the rabbit and the family of tortoises is given on page 283 "Brer" is a word of negro origin, and means brother See that the children understand the significance of the Rabbit's remark· "If we had a race, I could sow barley as I went along and it would be ripe for you to cut when you came by"

STORY

Brer Rabbit could generally get the better of any animal, but old Brer Tortoise was just as cunning as he was, and one day he

made Brer Rabbit look very foolish This was how it happened.

Brer Rabbit was saying to Brer Tortoise, "How slowly you crawl! If we had a race, I could sow barley as I went along and it would be ripe for you to cut when you came by"

"I could beat you if you ran on land and I swam in the water," replied Brer Tortoise.

"I don't believe you," said Brer Rabbit, "you are just as slow in the water as on land"

"Very well, let's try it," answered Brer Tortoise

Brer Rabbit looked scornful, but he agreed to the idea "I will run five miles along the river bank," said he, "and you shall swim five miles down the river"

"We'll have the race to-morrow," said Brer Tortoise.

The two animals measured five miles along the river bank, and put up a post at every mile

Now Brer Tortoise had a wife and four children, all so like him that you couldn't tell one from the other. All tortoises are very much alike. That night old Brer Tortoise called up his family, and told them exactly what to do to help him. "If you do as I say," said he, "I shall be able to win the race"

Oral Work

What does the beginning of the story tell you?

What did Brer Rabbit boast that he could do?

How did Brer Tortoise reply to Brer Rabbit's boasting?

What did the two animals agree to do?

How did they measure the distance for the race?

What do you know about tortoises?

What did Brer Tortoise do that night?

Retell the story

Children ask questions.

Written Work

I. **Children's drill.**

Write the date. Write the title of a fairy story Write the title of a poem Write the names of the days of the week which begin with *T*.

Dictation.—Now Brer Tortoise had a wife and four children, all so like him that you couldn't tell one from the other That night old Brer Tortoise called up his family and told them what to do to help him

II **Exercises on plural sentences.**

Definition—Stating-words (or verbs) often have to be changed when we speak of two or more things

A Write on the blackboard:

is changes to	are
One hat is there.	Four hats are there.
One boot is here.	Two —— —— here.
Where is the box?	Where——the——?
There is a ball	There——some——.
One boy is standing by	Six —— —— standing by.
One lady is here.	Three————here.

The children must complete the plural sentences, by changing the underlined singular nouns and verbs into the plural

B Write on the blackboard:

was changes to	were
One boy was in and the other was out.	Two boys were in and the others were out.
In the meadow was a little house.	In the meadow —— some little ——.
There was only one primrose	There —— only four ——
Mary was a fine girl	Mary and May —— fine ——
Where was he?	Where —— they?
The dog was at home.	The —— —— at home.

The children must complete the plural sentences, by changing the underlined singular nouns and verbs into the plural.

C. Write on the blackboard

has changes to have

Where has my brother gone?	Where have my brothers gone?
One cow has white feet.	Four —— —— white feet.
One boy has measles	Two —— —— measles.
He has toothache.	They——toothache
The ball has gone.	The —— —— gone.
The goat has shaggy hair	The —— —— shaggy hair.

The children must complete the plural sentences by changing the underlined singular nouns and verbs into the plural

D Write on the blackboard·

1 Where is my hat?
2. The dog is tired
3. The cat was hungry
4. The book is green
5 The girl has mumps
6 The horse was old
7. The master has left

The children must change these sentences into the plural.

E. Write on the blackboard

1. The boys are noisy.
2 The desks were dirty.
3 The babies have chickenpox
4 The hens were fat.
5 The fairies have a happy time

The children must change these sentences into the singular

III.* **Sentence making.**

Tell what Brer Rabbit and Brer Tortoise agreed to do

Tell how the two animals prepared for the race

What do you know of Brer Tortoise's family?

10.—BRER RABBIT AND BRER TORTOISE RUN A RACE

PART II

(Sentence Making)

STORY

EARLY next morning, Brer Tortoise put his wife at the starting post, and one of his children at each of the mile posts, while he himself sat down beside the winning post and waited.

Presently along came Brer Rabbit, laughing to himself to think how easily he was going to beat Brer Tortoise He saw Mrs Tortoise in the water and, thinking it was Brer Tortoise, cried out, "Are you ready? Go!"

Off went Brer Rabbit along the bank, while Mrs. Tortoise quietly slipped into the water and swam back home. At the first mile post Brer Rabbit found the eldest little tortoise popping his head out of the water.

"Goodness me!" said Brer Rabbit "Old Brer Tortoise swims faster than I thought."

When he found the next little tortoise at the next mile post, he was still more surprised. When he found a tortoise at the third post, he gasped, and when he found one at the fourth he began to feel faint.

"I must put on more speed," he thought. He laid back his long ears and flashed along the last mile like a streak of lightning As he reached the winning post, puffing and panting, up popped the head of old Brer Tortoise as cool as you please

"Why, Brer Rabbit," said he, "I thought you were never coming! Did you stop for a rest on the way?"

Brer Rabbit had no breath left to answer. He went sadly home, feeling ashamed of himself Old Brer Tortoise went home chuckling, however, and he and his wife and his four children had a good laugh over the trick they had played

ORAL WORK

What did Brer Tortoise do with his wife and children?

Where did he go himself?

Why did Brer Rabbit laugh?

Whom did Brer Rabbit see in the water?

Whom did Brer Rabbit think he saw?

What did Brer Rabbit find at the four mile posts?

What did he find at the winning post?

What did Brer Tortoise say to him?

What does the end of the story tell you?

Retell the story

Children ask questions

WRITTEN WORK

I Children's drill.

Write the date Write the names of the months which begin with *M*. Write the names of the days which begin with *S*. Write your address.

Dictation—When he found the next little tortoise at the next mile post, he was still more surprised. When he found a tortoise at the third post, he gasped, and when he found one at the fourth he began to feel faint

II Exercises on sentence making.

A. Write on the blackboard.

1. animal was a Brer Tortoise cunning
2. agreed and to Brer Rabbit race Brer Tortoise a run
3. alike are very tortoises all much
4. wife four Brer Tortoise children a had and
5. the win Brer Rabbit he race easily would thought

The children must re-arrange the above sentences, inserting stops and capitals.

B Write on the blackboard

1. The two animals measured ——.
2. Brer Tortoise called his family and ——.
3. He put one of his children ——
4. Brer Rabbit flashed along ——
5. Brer Tortoise and his family ——.

The children must complete these sentences in any way they please

C. Write on the blackboard

1. A stitch in time ——
2. Make hay ——
3. Little Boy Blue ——.
4. Little Bo-Peep ——
5. Simple Simon ——

The children must finish these well-known sentences.

D Write on the blackboard·

1. Tell in one sentence how Brer Tortoise placed his wife and children
2. Tell how Brer Rabbit was surprised
3. Tell why Brer Rabbit went home feeling ashamed.

11.—THE STUDENT AND THE PEARS

(Adverbs)

INTRODUCTION

THE children should be encouraged to tell all they know about weddings and wedding feasts Ask them to suggest the different things the student might have had to eat if he had been able to go to the wedding There is a blackboard sketch of a pear on page 283.

STORY

A young student was one day invited to a wedding feast. He dressed himself carefully in his best clothes and set out joyously to walk to the house where the wedding was to be held. He had not gone far when he came across a basket of fine, ripe pears which someone had carelessly left on the path.

"I must not eat anything now," said the student to himself, "or I shall not enjoy the wedding feast." So he thoughtlessly flung the pears into a muddy ditch and walked briskly on Soon he came to a river

which he had to cross The bridge, however, had been entirely blown away in a storm. The river was deep and flowed swiftly, so that the student could not go any farther

"No, I cannot get across," murmured the student despairingly "There is no feast for me I must go home again"

Thinking regretfully of his lost feast, he turned sadly home. He walked slowly along, looking for the ditch in which he had thrown the pears Then he knelt down, and pulled them out one by one, wiped them gently on his handkerchief, and ate them thankfully

"This is a lesson to me," he said, "never to spoil good food"

Waste not, want not.

Oral Work

What does the beginning of the story tell you?

What did the student find?

What did he say to himself?

What did he do?

What did he find when he came to the river?

Why did he go home again?

What did he do on his way home?

What lesson did he say he had learnt?

Retell the story

Children ask questions

Written Work

I. Children's drill.

Write your full name Write your address Write the date. Write the name of the story

Dictation.—The river was deep, and the bridge had been blown away in a storm, so that the student could not get across.

II Exercises on adverbs.

Definition—An adverb tells you more about the stating-word (or verb)

A. Write on the blackboard *swiftly, thankfully, carelessly, despairingly, thoughtlessly, joyously, gently.*

1. He set out —— to walk to the wedding.
2. Someone had —— left a basket of pears on the path.
3. He —— flung the pears into a ditch.
4. The river flowed ——.
5. "No, I cannot get across," he murmured——.
6. He wiped the pears —— on his handkerchief
7. He ate them ——.

The children must write and complete the above sentences with adverbs from the list.

B Write on the blackboard·

1. He dressed himself (carefully, gently, quietly) in his best clothes
2. He walked (madly, faintly, briskly) on.
3. The bridge had been (sadly, entirely, slowly) blown away
4. He thought (carelessly, regretfully, finely) of his lost feast
5. He turned (sadly, entirely, carefully) home again.
6. He walked (angrily, lovingly, slowly) along looking for the ditch in which he had thrown the pears.

The children must write and complete the sentences with the appropriate adverbs.

C Write on the blackboard·

1. The sun shines ——.
2. The birds sing ——.
3. The doctor spoke ——.
4. The children laughed ——.
5. He carried the eggs ——.

The children must complete these sentences with any adverb they please.

III * Sentence making.

Make a sentence telling what the student did with the pears the first time

Make two sentences telling what the student did with the pears the second time.

Make two sentences telling what you think the student ought to have done with the pears the first time.

12.—HOW THE SULTAN FOUND AN HONEST MAN

(Pronouns)

Introduction

A BLACKBOARD sketch of a man in Turkish costume is given on page 283 The children will require to know that the king of Turkey was called a sultan, and that the vizier was his chief lord The children will all have seen the night watchmen who sit in their huts in front of a brazier, guarding the workmen's tools and the excavations of the roads in England

Story

A sultan who ruled in Turkey had a room full of treasure, and wanted a watchman to guard it. "I must be careful not to choose a thief," thought he, "or I shall be robbed by my own watchman. I want an honest man. How can I find an honest man?" He sent for his vizier, who held the highest office in the land, and asked him what he was to do.

"Prepare a great feast at the palace," said the vizier, "and invite to it every man who would like to be the sultan's watchman. At the end of the feast, ask your guests to dance, and you will soon see which of them are honest men."

The sultan took this advice, made ready the feast, and invited the guests As each one arrived, he had to walk through a long dark passage. On each side of the passage were open sacks of gold and silver coins At the far end, the guests came to three steps, which led into a hall where the sultan was holding the feast

When every man had eaten his fill, the sultan rose from his seat. "Now, my friends," he said, "give me the great pleasure of seeing you dance" Nobody moved. Then all the guests began to make excuses,—all except one man, who came out from among them and danced a little jig up and down the hall.

"That is the honest man," said the vizier. "All your other guests have robbed you They filled their pockets with gold and silver coins from the sacks in the dark passage. If they had danced they would have jingled like money boxes This honest fellow did not touch the money that was not his, and so was not afraid to dance."

The good vizier was afterwards rewarded, and the honest man became the sultan's watchman

Oral Work

What does the beginning of the story tell you?

What is another name for a *sultan*?

Why did the sultan send for his vizier?

PEAR—*See page* 280
SCARECROW—*See page* 276
TURNIP—*See page* 271
THE HONEST MAN—*See page* 282
BRER RABBIT AND BRER TORTOISE RUN A RACE—*See page* 277

What does the middle of the story tell you?

Whom did the sultan invite to his feast?

Where had the guests to walk before they came to the hall?

Why did the guests refuse to dance?

What does the end of the story tell you?

How did the sultan know which was the honest man?

Retell the story.

Children ask questions.

WRITTEN WORK

I. **Children's drill.**

Write the name of your school Write the name of your road. Write the name of the story.

Dictation.—An honest man is afraid of nothing

II. **Exercise on pronouns.**

Definition.—A pronoun is a word that is used instead of a name-word (or noun).

A. Write on the blackboard:

1. A sultan had a room full of treasure, and (she, he, it) wanted a watchman to guard (him, her, it).
2. When the guests had eaten, the sultan asked (them, him, her) to dance, but (he, they, she) refused
3. Only one man danced a little jig, and the sultan gave (them, him, it) the post of watchman.
4. The sultan was pleased with the wise vizier and rewarded (them, her, him).

The children must write and complete the above sentences with the appropriate word

B. Write on the blackboard

1. The sultan wanted to find an honest man, so *the sultan* sent for the vizier and asked *the vizier* what *the sultan* was to do.
2. As each guest arrived, *the guest* had to walk along a dark passage which had sacks of coins on each side of *the passage*
3. The guests who had stolen money were afraid to dance, as *the guests* knew *the money* would jingle in their pockets.

The children must write and complete the above sentences, substituting pronouns for the words in italics.

III.* **Sentence making.**

Tell why the sultan wanted a watchman

Tell what the guests did as they came down the dark passage.

Tell why the honest man was the only one who was not afraid to dance.

13.—THE VAIN JACKDAW

(Choice of Words)

INTRODUCTION

A PRELIMINARY talk on both the jackdaw and the peacock will be necessary, especially to town children A blackboard sketch of a jackdaw is given on page 291, and one of a peacock on page 179 in Volume I of this series.

STORY

There was once a jackdaw who was not satisfied with his plain black feathers. He wished that other birds would think him something better than a jackdaw. So he picked up some beautiful feathers that had fallen from a peacock's tail and carefully stuck them on his own back.

He then ran in amongst a party of peacocks as if he were one of them But they did not receive him kindly "Who is this absurd creature pretending to be one of us?" the peacocks cried to each other. Then they turned on the jackdaw, and

pecked him so hard that he flew away as fast as he could

He then went back to his own family, the jackdaws, but they, seeing his strange feathers, would have nothing to do with him. "This bird is not one of us," they said, and turned their backs on him Thus the vain jackdaw lost all his friends

If we pretend to be better than we are, we shall be found out.

ORAL WORK

What does the beginning of the story tell you?

What did the jackdaw wish?

What did he do to obtain his wish?

What does the middle of the story tell you?

Why did the jackdaw not stay with the peacocks?

To whom did the jackdaw go next?

What did the other jackdaws say to him?

What does the end of the story tell you?

Retell the story.

Children ask questions.

WRITTEN WORK

I. Children's drill.

Write the date. Write your address. Write the title of any book you know. Write the title of a poem Write the names of the months which begin with *M*

Dictation—The vain jackdaw lost all his friends If we pretend to be better than we are, we shall be found out

II. Exercises on the choice of words.

A Write on the blackboard

1. As black as ——.
2. As red as a ——.
3. As white as a ——.
4. As thin as a ——.
5. As slow as a ——.

The children must supply an appropriate word.

B Write on the blackboard:

1. The children —— a long piece of seaweed on the rocks
2. On the mountain stood a tall and —— castle.
3. The merry children came tumbling —— out of school.
4. The man played —— music on his violin.
5. The —— cottage stood on the side of a —— hill.

The children may supply any words they please (For sketch of seaweed see page 291.)

C. Write on the blackboard:

1. The boy went *gaily* home for the holidays
2. Evenings in early summer are often *chilly*.
3. The old man went *sorrowfully* on his way.
4. The jackdaw *wished* to be thought better than he was.
5. All the flowers were of the most *lovely* colours.
6. He was a *courageous* soldier.

The children must change the italicised words for others similar in meaning.

D. Write on the blackboard

1. He was a *tall old* man.
2. Four *pretty* maidens stood at the door of the house
3. The stream was both *narrow* and *shallow*.
4. The father *frowned* at his son.
5. What struck him most was their *happy* faces.

The children must change the italicised words for others of opposite meaning.

III.* Sentence making.

Tell how the jackdaw showed that he was vain.

Tell how the peacocks received the jackdaw.

Tell how the jackdaw lost all his friends.

14.—THE PRINCESS OF THE IVORY CASTLE

(There and Their)

Introduction

IT will be necessary to tell the children from what animal ivory is obtained, and to describe it. They will be familiar with the ivory handles of teapots and knives, and will then have no difficulty in imagining a castle of "gleaming white ivory" Discuss with them the appearance of reflections in pools, rivers and lakes,—which way up does a reflection appear?

Story

The Emperor of China was out hunting one hot day when he became very thirsty. He stopped beside a pool and began to drink out of his hands As he stooped over the clear water, he saw in it the face of a beautiful maiden, and, thinking that she must be standing behind him, he turned round to look at her

There was no one to be seen He turned back and looked into the water There again was the beautiful face He called to his noble lords and showed them the face of the maiden in the water

"That is the face of the Princess of the Ivory Castle," said one, "but no one knows where her castle stands"

"I will find it, though I should spend my whole life in the search," said the emperor "The princess who lives there must be my bride"

For three years the emperor travelled through the world, seeking the Princess of the Ivory Castle. Alas! She was nowhere to be found At last he came to a dip in the hills in which lay a lake Looking into its still water, the emperor saw a castle of gleaming white ivory. He looked up, expecting to see the castle standing on the hills above him, but the hills were bare

"How foolish I have been!" he cried "The ivory castle is in the water." With these words he dived into the lake

At the bottom he found the ivory castle, and the princess waiting for him at its gate.

"I have always loved you," she said, "ever since I saw your face in the pool three years ago. I will gladly be your wife."

Full of joy, the emperor led her out of the lake and married her, and they lived happily together all their days

Oral Work

What does the beginning of the story tell you?

What did the emperor see in the water?
Why did he turn round?
What did his lords tell him?
What does the middle of the story tell you?
To what place did the emperor come at last?
What did the emperor see?
What did he say?
What does the end of the story tell you?

Written Work

I. **Children's drill.**

Write the date Write the names of the months that begin with *J* Write the title of the story. Write your full name and address.

Dictation.—As he stooped over the clear water, he saw in it the face of a beautiful maiden, and, thinking that she must be standing behind him, he turned round to look at her

II **Exercises on there and their.**

A. Write on the blackboard·

There is used to mean a place, e.g. I went there yesterday

There is also used with was, were, is and are, e g There is a star in the sky.

Their always stands before a noun, to show that it belongs to some other people or things e.g John and Mary gave me their pencils.

1. —— was an old woman who lived in a shoe.
2. My aunt had a house near by, so I took the child ——
3. Poppies soon shed —— petals.
4. Rose and May had left —— books at home.
5. —— in the water was the beautiful face
6. "The princess who lives —— must be my bride," said the king

The children must fill the gaps with either there or their.

B. Write on the blackboard:

1 Make two sentences using the word their.
2. Make two sentences using the word there.

III * **Sentence making.**

Tell how the emperor fell in love with the princess.
Tell why the emperor travelled about for three years.
Tell how the emperor got into the Ivory Castle

15.—MAY DAY

(Capital Letters and Inverted Commas)

Introduction

THE subject of May Day provides ample opportunity for informal conversation between teacher and pupils. In medieval England, May Day was a great public holiday. All classes of the people, young and old alike, were up with the dawn, and went a-Maying in the woods. Branches of trees and flowers were borne back in triumph to the towns and villages, the centre of the procession being occupied by those who shouldered the maypole, which was gay with ribbons and wreaths The children will be able to furnish the names of plants, animals and birds to be found in May There is a blackboard sketch of a cuckoo on page 291.

MAY DAY

Good morning, lords and ladies, it is the first of May,
We hope you'll view our garland, it is so sweet and gay

The cuckoo sings in April, the cuckoo sings in May,
The cuckoo sings in June, in July she flies away.

The cuckoo drinks cold water to make her sing so clear,
And then she sings Cuckoo! Cuckoo! for three months in the year.

I love my little brother and sister every day,
But I seem to love them better in the merry month of May.

Oral Work

What is the date of May Day?
What is another name for a garland?
Of what is a garland made?
In what months does the cuckoo sing?
What does the poet say makes the cuckoo sing so clear?
What game is played on May Day?

Written Work

I. **Children's drill.**

Write the date. Write the name of the story Write the names of the months in which the cuckoo does not sing Write the address of your school.

Dictation—Many years ago one of the happiest days in the country was May Day. The children gathered the may blossom that covered the hedges and made it into a garland, which they carried from house to house, singing their songs and hoping to receive pennies.

II. **Graded exercises on capital letters and inverted commas.**

A Insertion of a capital letter for the first word of each verse

Write on the blackboard:

1. boats sail on the rivers,
and ships sail on the seas,
but clouds that sail across the sky
are prettier far than these

2. down in a green and shady bed
a modest violet grew,
its stalk was bent, it hung its head,
as if to hide from view

B Insertion of (*a*) a capital letter for the first word of each verse; (*b*) other necessary capitals.

Write on the blackboard.

1. dull november brings the blast—
hark! the leaves are whirling fast.

cold december brings the sleet,
blazing fire, and christmas treat.

2. the cuckoo sings in april, the cuckoo sings in may,
the cuckoo sings in june, in july she flies away.

3 minnie and winnie
slept in a shell.

C. Insertion of inverted commas

Write on the blackboard:

1. Little lovely lady,
You must be a queen,
In your yellow satin
And your gown of green.
But the stately lady
Bowed her gracious head,
I was made a tulip,
Not a queen, she said.

2. Are you ready? the Snowdrop asked,
'Tis time to start, you know
Almost, my dear! the Scilla replied,
I'll follow as soon as you go.

D. Insertion of (*a*) a capital letter for the first word of each verse, (*b*) inverted commas

Write on the blackboard:

1. and while on her pillow she softly lay,
she knew nothing more till again it was day;
and all things said to the beautiful sun,
good morning, good morning, our work has begun!

2 home they brought her warrior dead
she nor swoon'd nor utter'd cry
all the maidens, watching, said,
she must weep or she will die

E. Insertion of (*a*) a capital letter for the first word of each verse; (*b*) inverted commas; (*c*) any other necessary capitals.

Write on the blackboard.

1. a jolly old sow once lived in a sty,
   and three little piggies had she;
   and she waddled about saying, umph! umph! umph!
   while the little ones said, wee! wee!

2. the sunbeams came to my window,
   and said, come out and see
   the sparkle on the river,
   the blossoms on the tree!

III.* **Sentence making.**

Tell what you know about May Day.

Describe a may tree in bloom

Describe a game you play out-of-doors in the summer.

16.—THE DOG AND THE WOLF

(Conversations. Part I.)

INTRODUCTION

IT will be necessary to tell the children about the wolf, the ancestor of the dog. The wolf-hound, which is popular among dog-lovers to-day, bears the closest resemblance to its wild cousin There is a blackboard sketch of a wolf on page 291.

STORY

A lean and hungry wolf one day met a fine, fat dog. "You have plenty to eat, brother, I can see," said the wolf. "Where do you find your food? I spend all the night hunting and catch barely enough to keep me alive, while you, who never hunt at all, are as plump as a chicken"

"I work for my master," replied the dog, "and in return he feeds me, and very well, too. I have also a warm kennel to live in, and everyone in the house makes a fuss of me."

"What work do you do?" asked the wolf

"I guard the house at night, and keep away thieves," said the dog

"Could I do the same?" the wolf asked.

"Yes, indeed," answered the dog. "Come with me, I will find you a good master"

So the dog and the wolf set off together for the town On their way the wolf noticed a worn place in the hair on the dog's neck.

"Why is the hair on your neck so worn away, brother?" asked the wolf.

"Oh," said the dog, carelessly, "that is the mark made by my collar. My master puts a chain on me and keeps me fastened up all day"

The wolf stopped "Ah, my friend," said he, "I shall not come with you You may keep your good food I would rather be hungry and able to please myself, than be a prisoner, however well-fed."

ORAL WORK

What does the beginning of the story tell you?

Describe the wolf.

Describe the dog.

Of what did the wolf complain?

What did the dog tell the wolf?

Why did they set off together?

What did the wolf notice as they went along?

What did the dog say about his neck?

What does the end of the story tell you?

Why did the wolf call the dog *a prisoner*?

Retell the story.

Children ask questions.

WRITTEN WORK

I. **Children's drill.**

Write the date. Write the name of the story. Write a name for the dog. Write a name for the master. Write the names of the last two months in the year.

Dictation.—It is better to be poor and free, than rich and a prisoner.

II. Exercises on conversations.

A. Write on the blackboard·

1. "how fat you are!" said the wolf, "i wish i could be the same"
2. "i work for my master," replied the dog
3. "what work do you do?" asked the wolf
4. "i guard the house at night," answered the dog
5. "come with me," said the dog, "i will find you a good home."
6. "ah, my friend," said he, "i shall not come with you"

The children must write the above sentences, putting in the capital letters

B. Write on the blackboard.

1. I spend all the night hunting, said the wolf You never hunt at all.
2. As well as my food, I also have a warm kennel, said the dog.
3. The dog said, I keep away thieves.
4. Could I do the same? the wolf asked.
5. Yes, indeed, replied the dog.
6. Why is the hair on your neck worn away? asked the wolf.
7. Oh! said the dog, carelessly, that is the mark made by my collar.

The children must write the above sentences, putting in the inverted commas.

C. Write on the blackboard

1. I say to my dog, "——"
2. My dog says to me, "——"
3. Every morning I say to my friends, "——"
4. The butcher says, "——"
5. The greengrocer says, "——"

The children must write and complete the above passages with the spoken words.

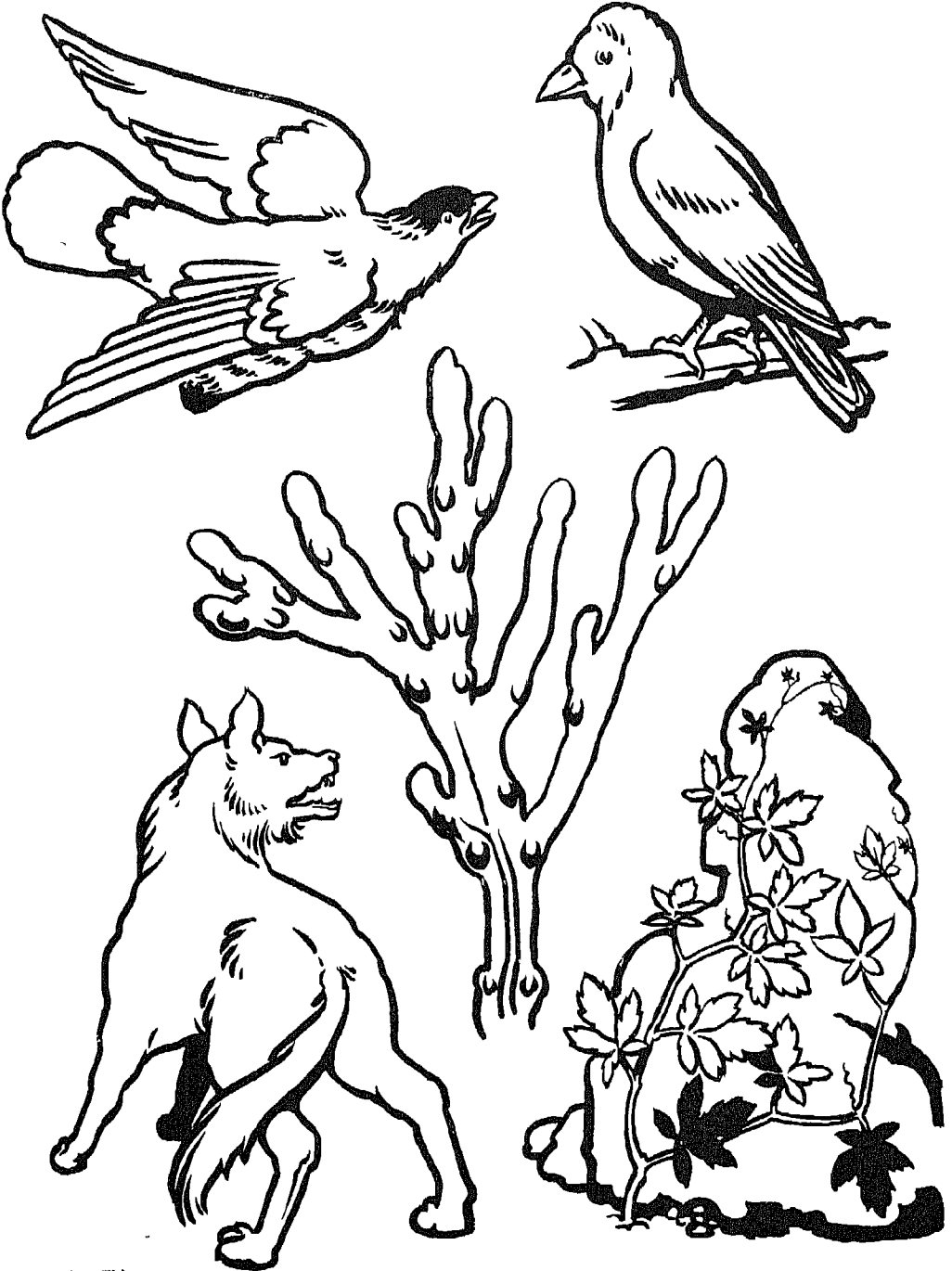
III * Sentence making.

Tell in what ways the dog was lucky
Tell in what way the wolf was lucky
Write three sentences about a wolf.

17.—THE RED CREEPER

(Conversations. Part II.)

EVERYONE knows the Virginia creeper, whose leaves show many lovely shades of red in autumn. The children of Poland are told this charming story of why the creeper changes colour.

When God made all the plants, He painted their flowers last of all. As He passed by, all the little flowers stretched out their

Cuckoo—*See page* 287

Jackdaw—*See page* 284

Seaweed—*See page* 285

Wolf—*See page* 289

Virginia Creeper—*See page* 290

stalks to Him, so that He should see and paint each one in lovely colours.

Among the plants was a small creeper which grew at the foot of a large, bare rock. She was too shy to stretch out her tiny flower to be painted, so it was left green, and the creeper felt very sad about it when she saw the radiant colours of the other flowers.

After God had passed, the sun came up, the birds sang, and butterflies flitted to and fro The old rock began to crack and scorch in the hot sunshine. "This heat is terrible!" he groaned. The creeper heard him muttering to himself, and felt so sorry for him that she forgot her own trouble. "I will cover him with my leaves," she thought; "they will shade him and keep him cool." So she grew and grew till the old rock was quite covered.

Soon after, an angel came that way to see the wonderful colours God had painted When he saw the tender green leaves of the Virginia creeper spread so lovingly over the face of the bare rock, he cried, "This plant has no coloured flowers, but it is the most beautiful of all!"

The little creeper blushed a lovely crimson when she heard the angel praise her, and every year she remembers and blushes again.

Oral Work

Describe the Virginia creeper.

Where do you find the Virginia creeper growing?

What happens to the creeper at the end of the summer?

Which part of the plants did God paint last?

What did the flowers do?

What happened to the creeper?

Why did she feel sad?

What did she do to show her pity for the rock?

Who came by soon after?

What did the angel say?

What does the end of the story tell you?

Retell the story.

Children ask questions.

Written Work

I. **Children's drill.**

Write the date Write the name of the creeper. Write the names of the autumn months.

Dictation.—Everyone knows the Virginia creeper, whose leaves show many lovely shades of red in autumn. She was too shy to stretch out her tiny flower to be painted, so it was left green.

II **Exercises on conversations.**

A. Write on the blackboard:

1. please paint me blue, said the corn-flower.
2. i like red best, observed the poppy.
3. why are your flowers still green? asked a butterfly.
4. the creeper replied, alas! i was too shy to stretch out my stalk.
5. i am nearly scorched, muttered the rock.
6. this heat is terrible! he groaned
7. she said to herself, i will cover him with my leaves.

The children must insert the necessary inverted commas and capital letters.

B. Write on the blackboard:

1 The creeper said that she wished she had been painted.
2. The old rock said that he was beginning to crack.
3. The creeper said that she was sorry for the old rock.
4. The creeper said she would keep him cool with her leaves.

The children must put the above sentences into direct speech

III * **Sentence making.**

Tell what the Virginia creeper is like in summer and in autumn.

Tell how the flowers got their colours.

Tell why the angel praised the creeper.

GROUPED WORDS FOR SPELLING

THIS list of words will be useful for spelling drill, for transcription and for oral and written composition. It is not advisable to use the list for mechanical spelling, a practice which is opposed to right principles of education. The learning to spell isolated words unintelligently is wearisome and almost useless. The reasonable way of grasping the meaning of words is by their use To this end the words are arranged in associated groups which will appeal to the child's intelligence. Words strange to the learner are met with in company with others that are known In a composition lesson on the fishmonger, for example, the teacher asks the children to supply the names of the fish that they have seen in a fishmonger's shop. The names of the most common fish are written on the blackboard, the children are invited to give sentences containing the words, they may write some of the sentences, and in the same or a subsequent lesson they write the names in their notebooks Every word so written will have some meaning for the child Strict supervision is needed to see that no word is written incorrectly in the notebook, and it is essential that the spellings should be revised at frequent intervals Sometimes pictures can be utilised in connection with the spelling lesson, and often it is possible for children to demonstrate in dumb show the meaning of certain verbs, for example *throw*, *doze*, *recline*, *whistle*. The list of words in Volume I, page 172, should be used for revision purposes

1. **The Classroom:** easel, blackboard, guard, shovel, coal scuttle, mantelpiece; picture, timetable; satchel, compass, crayon, chalk, lead pencil.

2 **Breakfast:** coffee pot, cocoa; bacon, liver, rasher, poached eggs; bloater, kipper, haddock; toast, marmalade; grapefruit, prunes, porridge, bread and milk.

3. **Dinner:** napkin, carvers, tumblers, knives; tureen, ladle, soup; cauliflower, cabbage, spinach, potatoes; pudding, dumpling, pie, tart; lemonade, gingerbeer, water.

4. **Tea:** teapot, saucer, cream; honey, preserve; teacake, scone, crumpet, muffin, sponge finger, chocolate biscuit, currant bread.

5. **Picnic:** basket, hamper, cardboard plates, thermos flask; cucumber sandwich, hard boiled eggs, lettuce, sausage roll, turnover; spirit stove, kettle, matches.

6. **The Fishmonger:** conger eel, whiting, skate, sprats, cockles, prawns, shrimps, winkles, mackerel, turbot, salmon, sole, plaice, herring

7. **The Poulterer:** poultry, game; goose, gosling; duck, duckling, turkey, pigeon, pheasant, partridge, hare, rabbit.

8. **The Grocer:** oatmeal, cornflour; grapes, sultanas, currants, raisins, margarine, lard, nutmeg, cloves, mustard, sago, rice, tapioca.

9. **The Greengrocer:** gooseberry, raspberry, strawberry, pear, orange, banana, lemon, damson, greengage, cherry, walnut, Brazil nut, chestnut, coconut, almond, onion, celery, radish, parsnip, turnip, parsley, mushroom, carrot, Brussels sprouts, marrow

10 **The Corn Chandler:** wheat, rye, maize, oats, rape, bran, barleymeal, oilcake, linseed, straw, haricot beans, dog biscuits.

11 **The Ironmonger:** kettle, saucepan, preserving pan, stewpan, steamer, strainer, bucket, pail, bowl; carpet sweeper, hearth-brush, blacklead, polish, paraffin, mangle, wringer.

12. **The Jeweller:** watch, clock, bracelet, necklace, pendant, brooch, bangle; diamond, ruby, emerald, coral, cutlery, silver, gold, bronze.

13. **The Draper:** velvet, flannel, holland, canvas, calico, handkerchief, cotton, elastic; stockings, gloves; blanket, bedspread, tablecloth, curtain, duster, towel.

14 **The Chemist:** soap, sponge, toothpaste, toothbrush, lint, bandage, vaseline, scissors, pills, bottle, medicine.

15. **The Chimney Sweep:** fireplace, hearth, chimney stack; brush, Turk's head, scraper; yearly, spring cleaning, soot.

16. **The Butcher:** beefsteak, mutton, liver, loin, lamb, veal, knuckle, cutlet, kidney, dripping, suet, sweetbread, venison, sausage, brawn, tripe

17. **The Stationer:** foolscap, typing paper, exercise book, pencil, indiarubber, eraser, postcard, lettercard; newspaper, magazine, string, paper fastener, sealing wax; lending library.

18 **The Dressmaker:** thimble, bodkin, needle, thread, fit, gather, seam, tack, stitch; material, button, loop, collar, bodice, machine, tape measure.

19 **The Policeman:** helmet, tunic, armlet, waterproof, truncheon; lantern, electric torch; beat, patrol; constable, inspector, police station.

20 **The Sailor:** ashore, afloat, mast, rigging, sail, funnel, cabin; vessel, barge, liner, steamer, captain, crew, pilot, bluejacket, compass, wheel.

21. **The Soldier:** rifle, bayonet, bullet, cannon, shell, uniform, drill, squad; private, corporal, sergeant, major, colonel, general, field-marshal.

22. **Buildings:** abbey, cathedral, church, chapel, college, school, hospital, laundry, factory, warehouse, theatre, cinema; hotel, garage.

23. **The House:** kitchen, scullery, bathroom, dining room, drawing room, parlour, attic, garret, tool shed, bicycle shed, coal shed, greenhouse, dustbin, cistern, boiler.

24. **The Railway Station:** engine driver, fireman; porter, collector, guard; furnace, tender, footplate; signal, whistle; truck, carriage, ticket, luggage, platform.

25. **The World:** island, mountain, valley, valleys, plain, moor, water, sea, ocean, waves, billows, shore, beach, coast, shingle, pebble, seaweed, cliff, gulf; port, dock, harbour, pier; spring, brook, stream, river; volcano.

26. **The Country:** field, pasture, meadow, park; forest, wood, road, lane, path, hedge, fence, stile, ditch; earth, soil

27. **The Farm:** stack, rick, barn, cowshed, pigsty, hencoop, stable, manger, trough; plough, harrow; reaping machine, threshing machine, shovel, pitchfork, billhook.

28 **The Weather:** rain, hail, sleet, snow, frost, ice; wind, breeze, draught, storm, gale, thunder, lightning, rainbow; light, shadow

29 **Animals:** cattle, bull, bullock, calf, calves; sheep, ram, ewe, lamb, horse, mare, colt, foal, pony, mouse, dormouse, squirrel, hedgehog

30. **Birds:** blackbird, sparrow, starling, hawk, cuckoo, heron, lapwing, seagull, robin, peacock, peahen, magpie, bullfinch, canary, parrot.

31 **Wild Flowers:** cowslip, foxglove, cornflower, poppy, hawthorn, hemlock, speedwell, plantain, clover, chickweed, buttercup, dandelion, primrose, bluebell, groundsel, nettle, thistle, bramble.

32 **Garden Flowers:** tulip, iris, snowdrop, daffodil, hyacinth, honeysuckle, carnation, hollyhock, violet, marigold, aster, stock, wallflower, candytuft, lupin.

33 **Insects:** dragon fly, caddis, gnat, fly, flies, bluebottle; caterpillar, maggot, grub, cocoon, butterfly, moth, glow-worm, bee, drone, wasp, hornet; wireworm, beetle, ladybird, earwig, cricket, grasshopper, cockroach.

34. **The Body:** head, scalp, tongue, brain, heart, lungs, stomach; shoulder, elbow, wrist, thumb, nail, knuckle, palm, forehead, eyebrow, eyelashes, eyelid, foot, ankle, sole, heel, toe.

35 **Relations:** baby, babies, son, daughter, uncle, aunt; nephew, niece, cousin, husband, wife, brother, sister; woman, women; gentleman, lady, ladies.

36. **Amusements:** cricket, golf, football, Rugby, hockey, tennis, snowballing, marbles, kite.

37 **Badges of Girl Guides:** Knitter, Printer, Horsewoman, Housekeeper, Boatswain, Sportswoman, Dancer, Domestic Service, Milliner, Cobbler, Toymaker, Laundress, Dairymaid, Needlewoman, Motorist.

38 **Wolf Cubs:** Cubmaster, Scoutmaster, Patrol Leader, Weaver. Guide Orderly, Watcher, Emblem.

39. **Brownies:** Senior Citizen, Examiner, Recruit, Thrift, Nightingale, Fairy, Armlet.

40. **Scout Badges:** Ambulance, Camper, Gardener, Signaller, Cyclist, Missioner, Carpenter, Watchman, Marksman, Handyman, Woodman, Miner, Bugler, Pilot, Fireman, Boatman, Mason, Pioneer, Pathfinder, Swimmer

41 **Countries, etc.:** Canada, Canadian; Asia, Asiatic, China, Chinese, India, Indian, Africa, African, Wales, Welsh, Ireland, Irish, Scotland, Scottish; England, English.

42. **Arithmetic:** whole, half, halves, quarter, pair, couple, dozen, score, gross; top, bottom, middle, inch, foot, yard; acre, mile; ounce, pound, pint, quart, gallon, peck, bushel, first, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth, eleventh, twelfth.

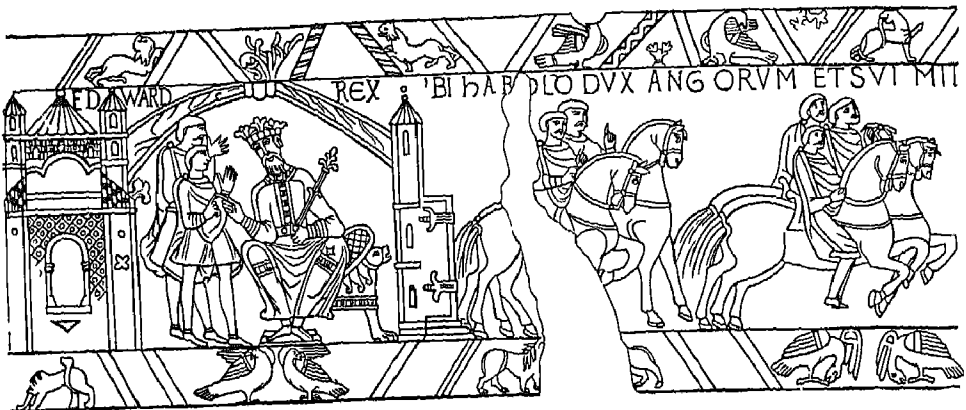
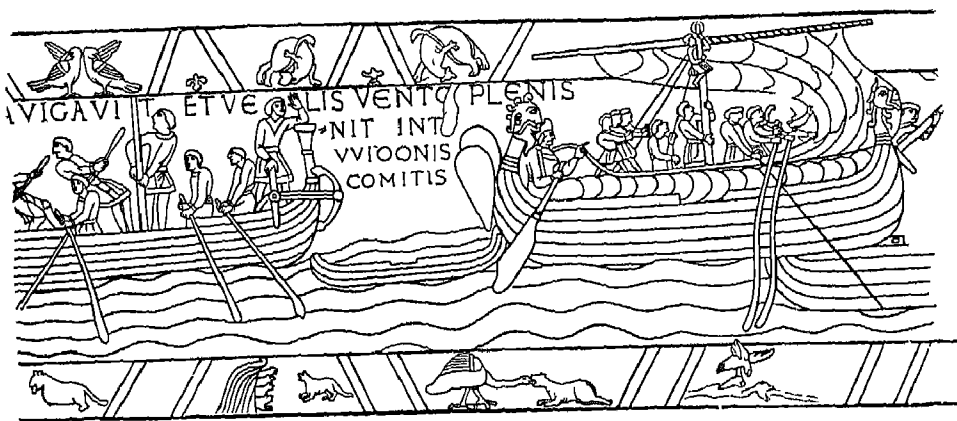
43. **Time:** morning, daybreak, dawn, sunrise, twilight, noon, midday, sunset, spring, summer, autumn, winter, Christmas, Easter, Whitsun.

44 **Qualities:** clean, dirty, punctual, late; gentle, rough, rude, polite; thrifty, wasteful, calm, restless, silent, noisy, industrious, idle; tall, short; rough, smooth; old, young, loud, quiet; hungry, thirsty; right, wrong.

45. **Adverbs, etc.:** here, there, where, once, twice, thrice, they, their, theirs, them, who, whose, whom, which, what, this, that, these, those.

SECOND YEAR'S COURSE

OF

NEEDLEWORK

Harold Taking Leave of Edward. Setting Out On His Journey

Harold Sailing From Bosham to Ponthieu

Harold Receiving The Crown

SCENES FROM THE BAYEUX TAPESTRY

SYLLABUS OF THE SECOND YEAR'S WORK

Type of pattern.—Adaptation of square and rectangular shapes, to make patterns of simple articles and garments having slanting lines and easy curves

Articles or garments made.—

1. With convex, or outer, curves —Egg cosy, tea cosy, oval cushion, tray cloth, doll's or baby's bonnet.
2. With concave, or inner, curves.—Feeders, pinafores, bags of all kinds.

Experimental work —Doll dressing

Knitting —Various articles and doll's clothes in plain and purl on two needles

Processes.—

1. Turning narrow (¼ in) hems round outer curved edges.
2. Facing with ¼ in. tape along inner curved edges
3. Turning hems round inner curved edges.
4. Sewing on bag handles made of bands of hemmed strips of material
5. Sewing on tape for strings

Stitches.—

1. Hemming.
2. Adaptation of previous stitches to new requirements, decorative stitchery, etc
3. Simple decoration by means of stick printing alone, or outlined with stitches, or by line designs in running or darning.

Materials.—As in previous year Donkey-boy cloth. Dyed Russian crash

INTRODUCTION

During the second year in the primary school the child should show an increasing colour sense. She will be more deliberate in choosing coloured materials and will probably be able to give a reason for her choice of both texture and colour. This opportunity of personal choice encourages forethought and reasoning in the child. Too often, after careful planning and cutting of a pattern, the teacher decides upon the materials, colours and decoration without reference to the child's wishes.

The range of materials used is limited when a uniformity of texture is required. The textures of casement cloth, linen, unbleached calico, and coarse gingham, however, are similar, when the right kinds of each are purchased. This gives a choice of four materials, with a correspondingly greater choice of colours *Coton à Broder* is again used for sewing, and towards the end of the year stranded cotton may be substituted.

Decoration of articles and garments, not only of a constructive character like the decorative stitchery used in connection with a process, but also in the nature of applied ornament, may now be considered Here again is ample opportunity for training in forethought and purpose, for such decoration can be used only when there is both space and previous provision for its inclusion. Simple embroidery in running stitch is suitable and easy, initials may be sewn upon bags and other articles to denote ownership, or simple pictures may be worked in running and darning to depict the purpose of the article. For a more formal type of pattern, printing sticks may be used on borders and for all-over patterns, and charming effects can be obtained by outlining the stamped patterns with stitches. Although this method of decoration tends to be somewhat mechanical, it serves the purpose of cultivating regularity of stitch

Generally, all the articles and garments made must be saleable, therefore the teacher should be acquainted with the local labour conditions and the children's home circumstances, for these conditions, unfortunately, often limit the scope of the needlework, and it is necessary to bear them in mind when preparing a course of work.

The value of keeping notebooks and of drawing the patterns to scale is extremely doubtful In the primary school children should keep the actual patterns they use, and write upon them the simple directions for their use. For all processes involving measurement of inches, or fractions of inches, a marker should still be used, but the gradual use of a tape measure is recommended towards the end of the year Rulers should never be used, except when required for pattern making

SUGGESTED COURSE OF LESSONS FOR THE FIRST TERM

(First Half of Term)

LESSON 1

Pattern-making.—The article chosen is a curved bag to hold knitting; it has a handle and is decorated by a picture in running stitch. Such bags are of standard size, so the children are given definite instructions regarding the measurements The children make the pattern of the bag in this lesson, the details of which are given on page 302

LESSON 2

Cutting out.—The children cut out their bags. Plain and purl knitting may be taught by the group method. The children should make simple articles in alternate rows of plain and purl before attempting any form of ribbing

LESSON 3

Turning down curved hems.—The children turn down ¼ in. hems round the curves of their bags, and securely tack the first turning The details of this lesson and the next are given on page 305

LESSON 4

Second turning of curved hem.—A demonstration on fixing the second turning of the hem, which should be ¼ in in width, is now given.

LESSON 5

Practical work.—The children fix their curved hems.

LESSON 6

Hemming stitch.—The details and demonstration of this lesson are given on page 306.

LESSON 7

Practical work.—The children commence hemming.

LESSON 8

Practical work.—The children continue their hemming.

LESSON 9

Decorated top hems.—The children now turn down 1 in. hems along the top of both halves of their bags The teacher revises

the method of securing hems by borders of decorative stitchery Free choice is given to the children of simple borders for this purpose.

LESSON 10

Practical work.—The children continue the work of holding their hems in place by means of stitchery borders Special attention must be paid to the arrangement of corners which make a neat finish.

LESSON 11

Practical work.—The children continue their stitchery borders. The more forward pupils may proceed with knitting.

LESSON 12

Making the handle.—This constitutes the first attempt at making anything in the nature of a band The details of this lesson are given on page 309.

(Second Half of Term)

LESSON 13

Practical work.—The children proceed with making the band for the bag handle. The edges may be either oversewn with cross-stitch, or may be held together with the stitch already used on the wide hem at the top of the bag.

LESSON 14

Practical work.—The children finish the handle and continue with knitting.

LESSONS 15 and 16

Decoration in running stitch.—The teacher conducts a discussion on the pictures or initials which may be worked in running stitch on each side of the bag The details of these lessons are given on page 311.

LESSON 17

Practical work.—The children work in running stitches over their patterns.

LESSONS 18 and 19

Practical work.—The children continue both needlework and knitting.

LESSON 20

Making up the bag.—A demonstration of the method of assembling the three pieces to form the bag is now given. The details of this demonstration are given on page 312.

LESSONS 21 and 22

Practical work.—The children make up their bags.

LESSON 23

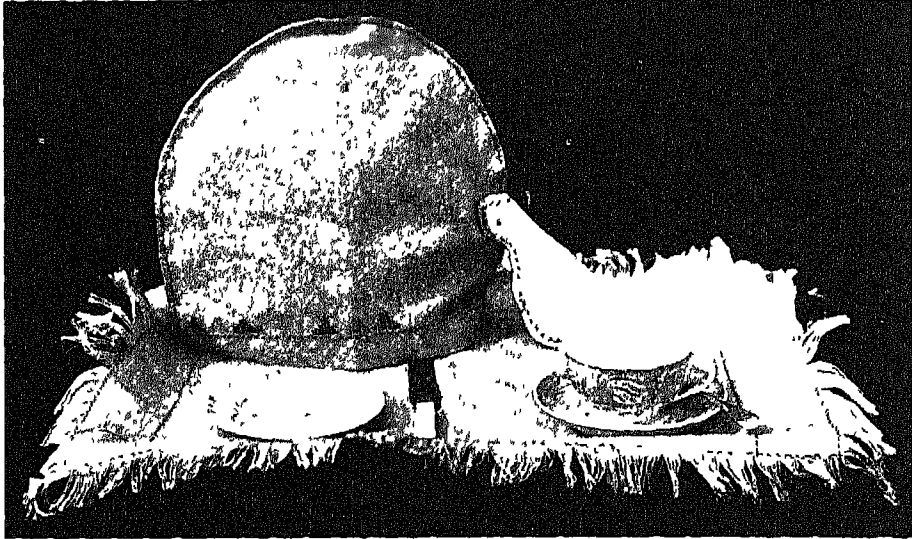
Pressing.—The children finish and press their needlework and knitting

LESSON 24

Experimental work.—This consists of pattern making, using dolls. The details of the demonstration are given on page 316.

Experimental work may take place at the end of a term, or at any other time when the children's interest seems to flag It acts as a mental stimulant; it is productive of new ideas and fresh thought about the work in hand, and it gives reality to the scheme.

The use of dolls in this lesson serves to show the relationship between the shape of the body and a flat pattern This forms a preparation for the work of the third term. A holiday comes now, and it is hoped that the lead given by the teacher on these lines will be followed by the children in experiments at home. The teacher may ask the children to bring their efforts to school during the first days of the new term. A small exhibition of holiday work gives interest to all.

NINE LESSONS IN DETAIL FOR THE FIRST TERM

A GROUP OF ARTICLES CONSISTING OF A TEA COSY, TEA-POT HOLDER AND TRAY CLOTH, TO SHOW PROGRESSIVE WORK

NINE lessons, the organisation and arrangement of which are set out in detail, are now given in the order in which they will be required The illustrations are of the actual material used for demonstration purposes, whether of paper or stuff Blackboard drawings and previously prepared diagrams are not required for young children's work

MAKING THE PATTERN OF A CURVED BAG TO HOLD KNITTING

(Details and Demonstration of Lesson 1.)

PREPARATION

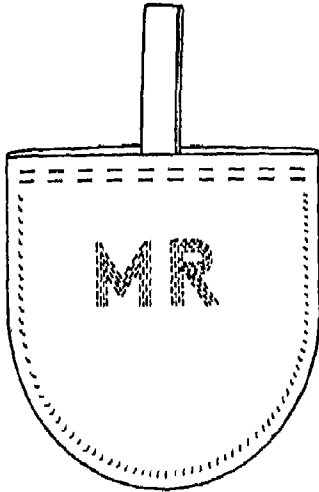
Previous knowledge—Making a pattern of a folded bag.

Aim.—The aim of this lesson is to teach the following points.—pattern making along progressive lines; how to fold paper in order to produce curves, training children in accuracy, and in the belief of fitness for a special purpose

Teacher's requirements.—A finished bag containing knitting. A 24 in. ruler. Blackboard and chalk Plain white paper, 25 in. by 20 in in area. A piece of material, 40 in. by 20 in in area. Pins, drawing pins and scissors.

Children's requirements.—Pieces of plain white paper, 12½ in by 10 in in area Pencils and scissors.

INTRODUCTION

Show the class the finished knitting bag; question them to arouse their interest and

MR

1. KNITTING BAG

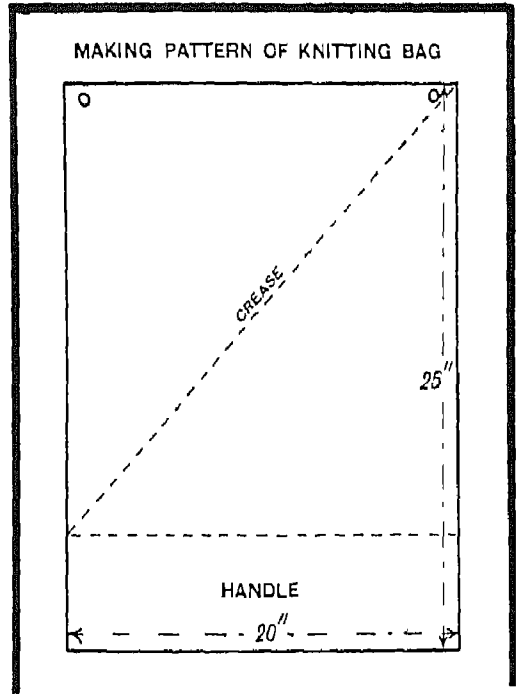
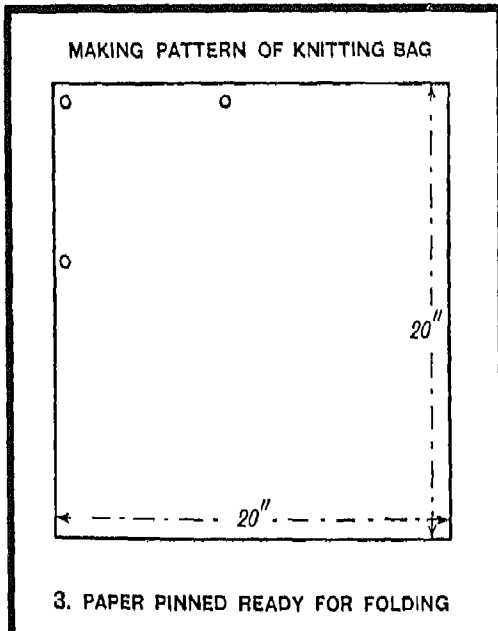
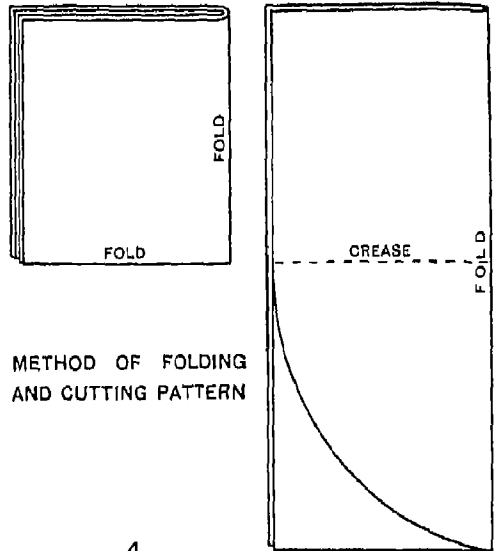
MAKING PATTERN OF KNITTING BAG

CREASE

25″

HANDLE

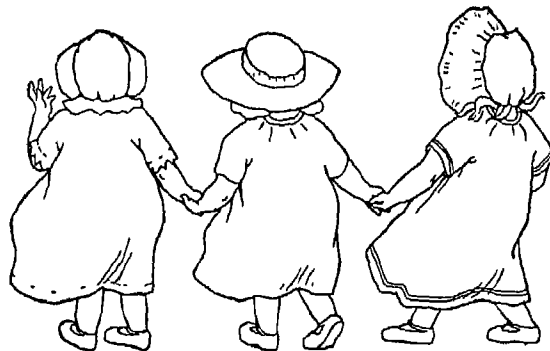
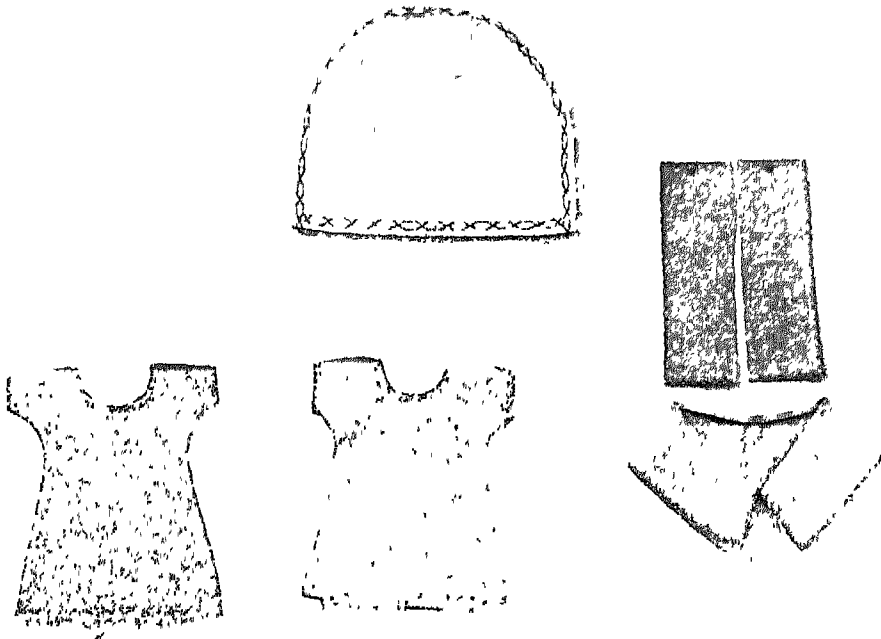
20″

2.

MAKING THE PATTERN OF A CURVED BAG TO HOLD KNITTING

to discover whether they realise the reason for using a curved bag for the purpose of holding knitting. Tell them that it has a single handle because one of this description hangs easily on the arm, or on a corner of a chair back, or the arm of a chair; also the wool will pull out of the top of the bag without becoming entangled with the handle. Revise the reasons for first making a pattern by questions to the class.

PRESENTATION

Hold up the finished bag, and ask the children to say what shape it is,—square. Ask them to look at the pieces of paper with which they are provided, and to say what shape they are,—oblong. Point out that a square is shorter than an oblong, and place the finished bag over a piece of paper belonging to a child in order to make this clear. Then tell the children that the extra piece of paper is to make the pattern of the handle of the bag. Also point out that two pieces are required to make the sides of the bag, but, because they are alike in shape, only one piece of pattern is necessary from which to cut out

The children are now to make one piece of the pattern. Pin the demonstration paper on the blackboard so that the lengthway is down the length of the board. Tell the children to place their pieces of paper upon their desks or tables in exactly the same position. The paper now has to be made square; by questions revise the method of doing this,—folding the paper diagonally, from the top left hand corner towards the lower right hand side. Cut off the surplus piece of paper, and write upon it the word "handle" Unfold the paper and smooth out the diagonal (the teacher will call it "slanting") crease Place three drawing pins into the paper upon the board, one at the top left hand corner, one slightly to the left of the centre at the top, and one slightly less than half-way down at the left hand side. This will be found to facilitate the folding process, which must be performed upon the board, and not in the teacher's hand, if the children are to see clearly what is being done. Fold the paper into four, first from the right hand edge to left hand edge, and then from the edge nearest the body, to the edge farthest away—at the top Supervise the children's folding. Unfold to half, keeping the folded edge to the right hand. Supervise this carefully. A crease is now to be seen across the paper. Draw a curve from the left hand edge of the crease, to the fold at the lower right hand corner, using a brightly coloured chalk. The children must now draw a similar curved line, the teacher helping where necessary. When all the children have finished this, demonstrate cutting along the curved chalk line; open out the pattern, and write upon it, "Pattern of bag. Cut two pieces" Let the children cut their patterns and write upon them.

CHILDREN'S WORK, TO ILLUSTRATE THE TREATMENT OF CURVES ON DOLLS' FROCKS, A TEA COSY AND A SET OF COLLAR AND CUFFS

MAKING A HEM ALONG A CONVEX CURVE

(Details and Demonstration of Lessons 3 and 4.)

PREPARATION

Previous knowledge—Turning up a narrow hem along a straight edge.

Aim.—The aim of this lesson is to teach the following points.—a practical method of neatening a curved edge when the curve is convex in shape, training in dexterity of handling and in observation

Teacher's requirements—A finished bag. A partly-turned hem along a curved edge, upon a piece of material to be passed round Markers. A large working specimen, i.e the bag previously cut out, one piece of which has the hem (measuring two inches) already finished off. Blackboard and bar from which to suspend the work. Pins, black two-ply wool for tacking.

Children's requirements.—The work in hand and the usual tools and markers.

INTRODUCTION

Point out the two kinds of hems on the finished bag and ask a child to tell the class how the straight hem was turned. Question the children to ensure that the difference in shape of the straight and curved edges has been observed, and tell them that turning along a curved edge is not so easy, because of the difference in measurement between the raw edge and the measurement ½ in. inside it. This is more clearly shown by measuring round the demonstration piece with a length of wool.

PRESENTATION

Revise the method of turning over the raw edge on to the wrong side, towards the body, using the marker for measuring ¼ in., and tacking the turning in place with ordinary tacking cotton. Let the class tack the first turning on one piece only, which will probably take up the whole of the remainder of Lesson 3

The demonstration of turning up hems is continued in Lesson 4, and the method of fixing the second turning is shown Demonstrate as follows·—Measure the second turning with the marker as before, and hold it in place with pins placed in an upright position through the turnings Let the children do this, giving help where necessary. Then show the tacking of the hem along the edge, using stitches ¼ in in length; longer stitches will not hold the hem down sufficiently firmly, as part of the hem needs to be pleated to make it fit nicely.

APPLICATION

Ask the class to think of any garments which might have to be treated in this way

HEMMING

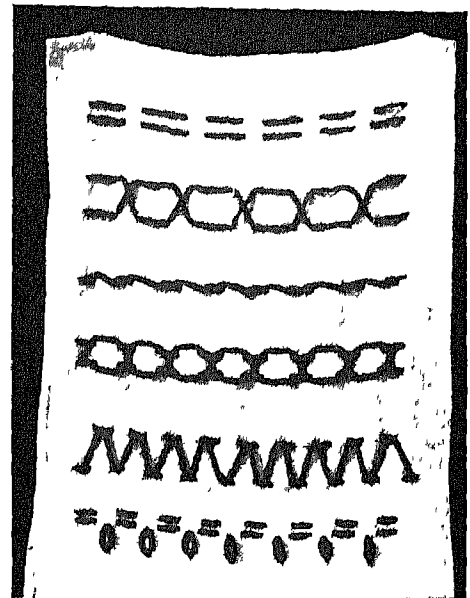
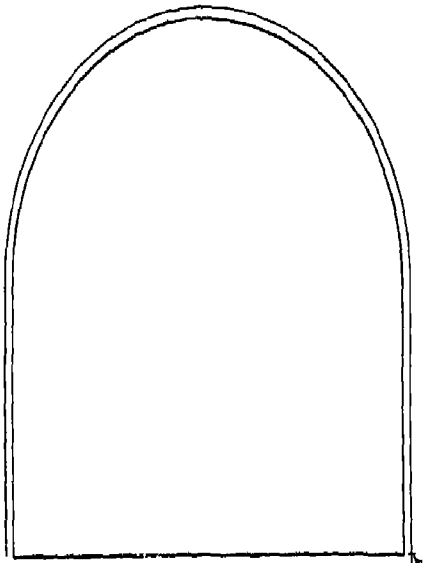
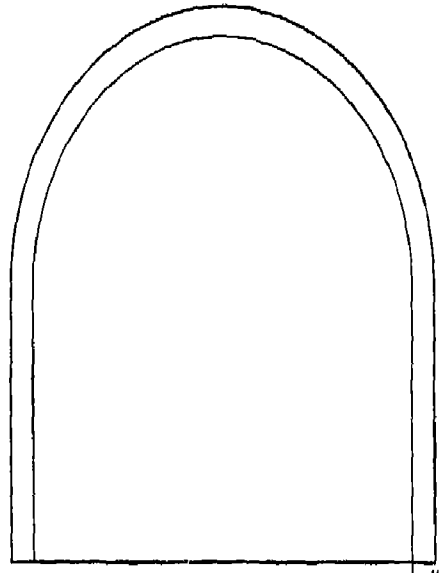
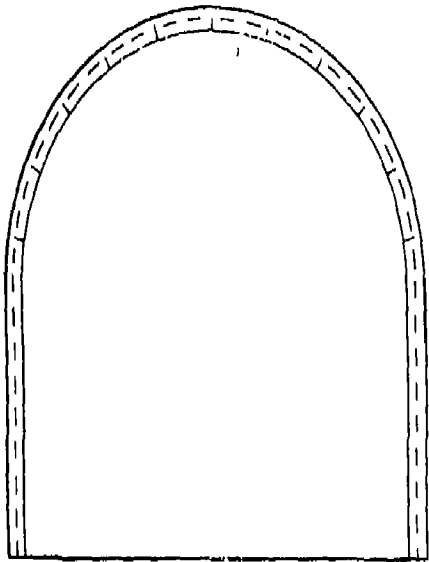
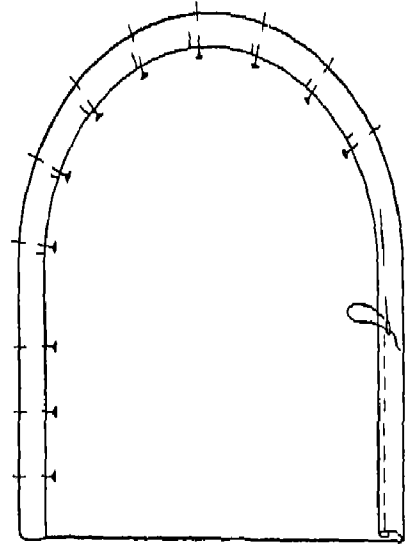
(Details and Demonstration of Lesson 6.)

PREPARATION

Previous knowledge—Holding a hem in place by means of running

Aim—The aim of this lesson is to teach the following points —another method of holding a hem in place, training children in dexterity of handling

Teacher's requirements—Finished bag Blackboard, and bar from which to suspend the demonstration specimen. The demonstration specimen, one piece of which has the hemming worked—the tacking not being

A teaching specimen to illustrate the teaching of hemming Materials used are soft unbleached calico faced on one side with leno in bright green to differentiate between right and wrong sides The wool is four ply red wool. A demonstration needle is used, also blanket pins

A teaching specimen for use in a lesson on decorative stitching Material used is house flannel stitched with scarlet and black rug wool Space is left for further stitches to be shown.

MAKING A HEM ALONG A CONVEX CURVE

removed Demonstration needle and four-ply red or orange wool

Children's requirements.—The work in hand.

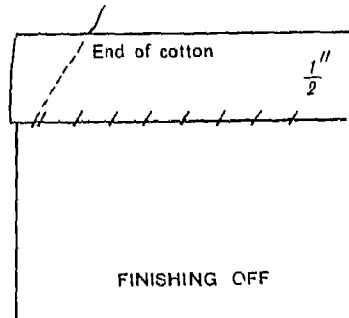
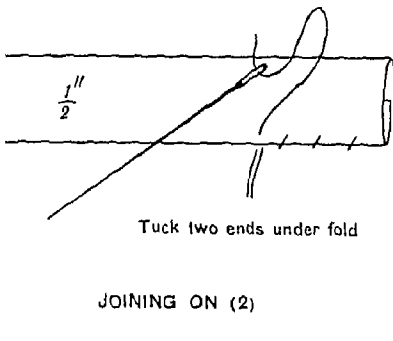
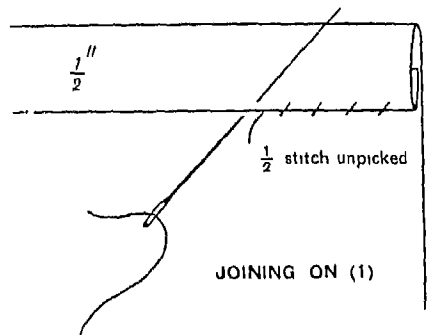
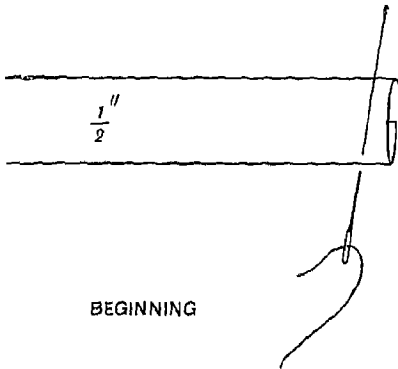
INTRODUCTION

Question the children in order to revise the previous methods of holding down hems. Tell them that they are now to be shown another way which they will find more useful when they make garments It is a stitch which goes right over the inner fold of the hem, and therefore it is better to use this stitch on articles which have frequently to be washed and ironed, as the hem edge is kept flatter and is more easily ironed.

The children are not likely to know very much about washing and ironing, but they will all have seen the processes at home, and this consideration of hems which are easily ironed will arouse interest and observation Show them the finished bag and the demonstration piece.

PRESENTATION

Hang up the finished demonstration piece, and suspend the working piece from the board, showing clearly the method of holding the work, i e with the outer edge of the work away from the body, the bulk of the work towards the body, and the hem lying across the two first fingers of the left hand, with the fingers held slightly apart. Let the children hold their work, while the teacher supervises and helps where necessary. Some children will no doubt find this very difficult.

Fastening on—Demonstrate the fastening on of the hemming stitch, by inserting the

HEMMING

needle between the hem fold and material in a slanting direction towards the right hand. Stroke the end of thread out of sight.

Making the stitch—Put the needle into the material only, just underneath the hem fold, push it partly through in a slanting direction towards the left hand, and bring it out again on the wrong side through all the turnings, a little way along Demonstrate two or three stitches, after which the class may begin their hemming

The teaching of the method of joining thread and fastening off will be deferred until a later lesson, until the necessity for so doing arises For convenience, however, the details are given here

Joining the thread.—Make a whole stitch and then unpick half, so that the thread is through the back of the hem only. Cut the thread, leaving a very short end (½ in). Place the newly threaded needle into the place in the hem turning where the previous stitch came out before it was unpicked, then continue the stitch exactly as before.

Finishing off—When the end of the hem is reached, work one stitch in the opposite direction, thus making a V, and then another stitch over the previous one, next put the needle in between the thicknesses, and bring it out on top of the hem edge. Cut off the thread closely.

The direction and appearance of the stitch should be the same on each side, but no result of this kind is evident in the children's work or is indeed to be expected for a long period; neither is the size of the stitch to be criticised. Hemming is admittedly a difficult stitch, and where the teacher feels that the children are not capable of its use at this age, a decorative stitch, such as cross stitch, or Y stitch, may be substituted, the method of demonstrating being similar.

MAKING A HANDLE FOR A BAG

(Details and Demonstration of Lesson 12.)

PREPARATION

Previous knowledge—Fastening a purse by means of a cord Oversewing.

Aim—The aim of this lesson is to teach the following points: a practical method of making a handle for a bag to hold knitting, encouragement in habits of tidiness

Teacher's requirements—The bag, showing the handle sewn in position A working specimen—the piece which was cut from the specimen bag. Blackboard and chalk Marker. Needle, red and black wool and pins

Children's requirements—The work in hand and tools

INTRODUCTION

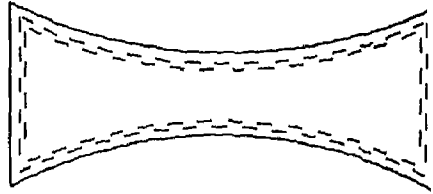
Display the finished bag with the handle attached, and revise by questions the reason for having one broad handle, this having been previously discussed during the lesson on making the pattern.

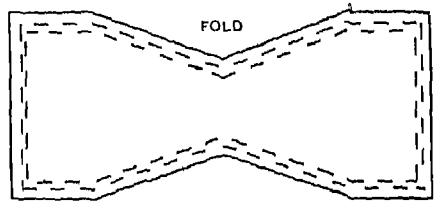
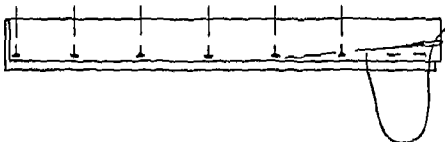
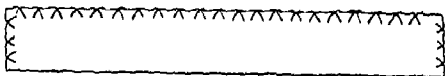
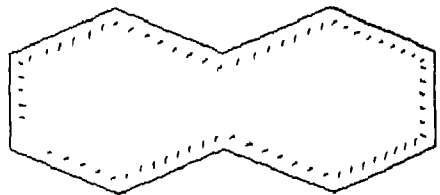
PRESENTATION

Demonstrate the first turning made on the four sides of the piece of material for the handle. By means of questions revise the turning of four sides,—first the two long and then the two short sides, in order to make easier the arrangement of corners Revise also the need to tack turnings in order to keep them firmly fixed. Tack the turnings and let the children proceed with their own turnings, making them ¼ in. wide

This process may take up the remainder of the lesson, so that the demonstration may have to be extended into the lesson following.

Pass round the finished bag and tell the children to look closely at it, then ask

Handle $10'' \times 2\frac{1}{2}''$

CURVED HANDLE

First turning $\frac{1}{4}''$ tacked

SHAPED HANDLE

Handle folded and pinned for tacking

Handle oversewn with cross-stitch

SHAPED HANDLE WITH EDGES HEMMED

MAKING A HANDLE FOR A BAG

which child is able to tell how the raw edges have been hidden It is quite probable that some child will have observed this, therefore allow her to come out and show on the large specimen what has been done. Show how this process may be made easy by placing the strip flat upon the desk with the short sides lying to the right and left Take a corner of the strip in each hand, and fold over lengthwise to the opposite corners, which lie farthest away from the body, fitting the edges together nicely. Supervise this process carefully in the children's work Pin through the two thicknesses of the strip near the edges—to keep them together, placing the pins in an upright direction Tack the edges together, the long side first, and then the two short ends; the tacking need not be fastened on or off securely The children proceed to tack their edges together, and when the majority have finished, demonstrate securing the edges by means of oversewing in cross stitch, or by a simple tacking or running stitch border all round. Show examples of each and let the children choose the stitch they desire to use.

APPLICATION

Whenever a strong handle or a band for fastening purposes is required, double material should be used; then it is firm and does not crumple in the same way as when single material is used Question the children to find out whether they know of any other instances where this kind of band is used.

DRAWING AND WORKING A PICTURE AND INITIALS IN RUNNING STITCH

(Details and Demonstration of Lessons 15 and 16.)

LESSON 15—DRAWING THE PICTURE AND INITIALS

Previous knowledge —Tacking-stitch border.

Aim —The aims of this lesson are threefold —to give an idea of a simple method of ornamenting a bag to denote ownership: to develop originality and ingenuity, and to teach the meaning of suitability to purpose as regards design for needlework.

Teacher's requirements.—Finished bag, with decoration in running stitch. The working specimen, which includes the two finished pieces of the bag. Needles, wool in two colours, and bar from which to suspend work. Blackboard and coloured chalk.

Children's requirements —The work in hand Well-sharpened pencils. Markers as previously used

INTRODUCTION

Show the finished bag and ask the children what they are able to see upon it. Interest is given if the decoration had not been put on for the last lesson, so that the children have to look for something that was not there before There are initials on one side, and a picture of a ball of wool and a pair of knitting needles on the other. The initials show to whom the bag belongs, and the picture the purpose for which the bag is intended.

PRESENTATION

First show the children the undecorated demonstration bag, and ask them where would be the best place on which to work a picture. This would be on the plain part, so that it will relieve the plainness, but the picture must not be worked all over or the appearance might be muddled and spoilt. So that before the picture can be drawn, the size of the part upon which it is to be put must be considered, in order that it shall be exactly the right size for the bag. The picture can then be drawn to fit into the space, just as it is shown on the finished bag The teacher will now draw a picture of a ball of wool and knitting needles upon the working specimen Show the children very clearly how the space must be occupied, discuss with them various other pictures which they might like to draw, and then

allow their imagination and originality to have free play Let them pencil faintly any picture they like on one side of the bag Upon the reverse side of the bag they may draw their initials large enough to take approximately the same amount of space as the picture The working of the running stitch will take place during the following lesson, when everyone has drawn the picture and the initials.

LESSON 16.—WORKING THE PICTURE AND INITIALS IN RUNNING STITCH

The organisation of this lesson has been described in the previous lesson. The children should have their bags with drawings of both picture and initials in faint pencilling.

INTRODUCTION

Show the finished bag, and question the children in order that they may observe that running stitch has been used to outline the drawing.

PRESENTATION

Suspend the working specimen from the hanging bar, or blackboard, and work running stitches all round the outlines of the ball of wool and the needles, putting a double line for each needle The size of the stitches should equal half the length of the first piece of the marker, or half the width of the hem round the curve (i e. $\frac{1}{8}$ in) To commence, put the needle in from the back, or wrong side, leaving an end of thread to be oversewn into the running stitches later, and make the stitches equal in size, on both right and wrong sides. Join the thread if necessary, and finish off in the same way. The children should then outline their own pictures, the teacher supervising and helping Work the initials in three or four rows of running to gain a more solid effect. To finish off, turn the work to the wrong side, and oversew the back of the stitches with the ends of thread

APPLICATION

This stitch can be used in many more ways. Suggest other ideas for pictures from finished articles, illustrations, or by drawing on the blackboard. Such things as a ship (using rows of alternate stitches to depict the sea), a cricket bat and ball, a needle and a reel of cotton readily suggest themselves; also short sentences such as "Sleep well" on a nightdress bag.

Results —The results of this type of lesson will probably fail to come up to the teacher's expectations, some of the drawings being too small, others too large Also a slight grubbiness is obviously unavoidable where pencils have to be used This, however, may be removed by the teacher by the application of a small amount of powdered magnesia, which should be left on for two or three days; the articles should then be shaken to remove the powder, leaving the work much cleaner. The children will enjoy this form of sewing as it gives their imagination full play and develops their inventive powers.

MAKING UP THE KNITTING BAG

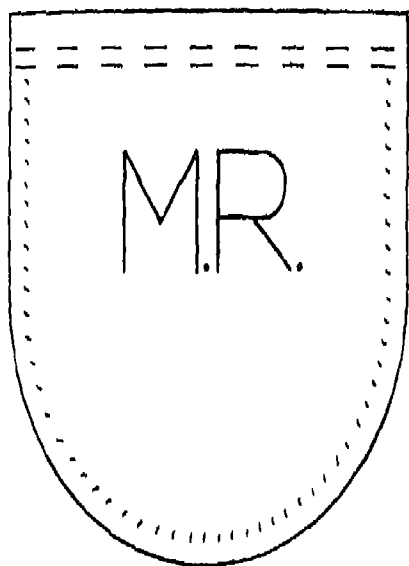
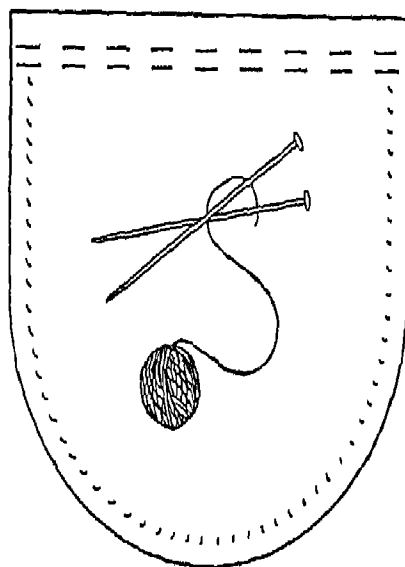
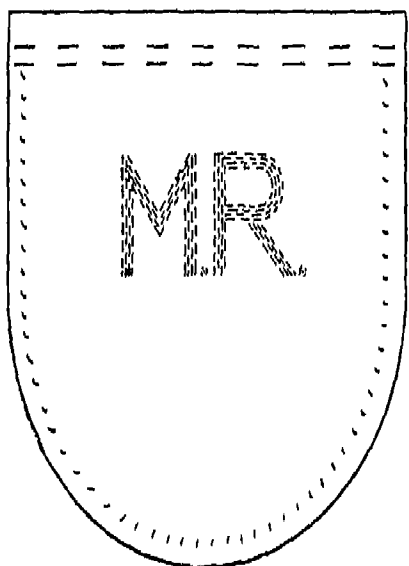
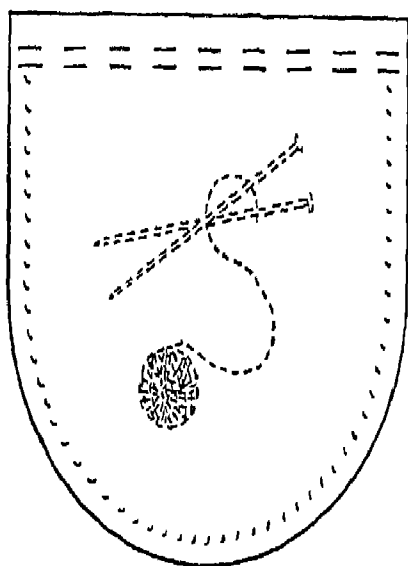
(Details and Demonstration of Lesson 20.)

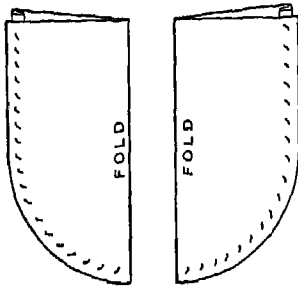
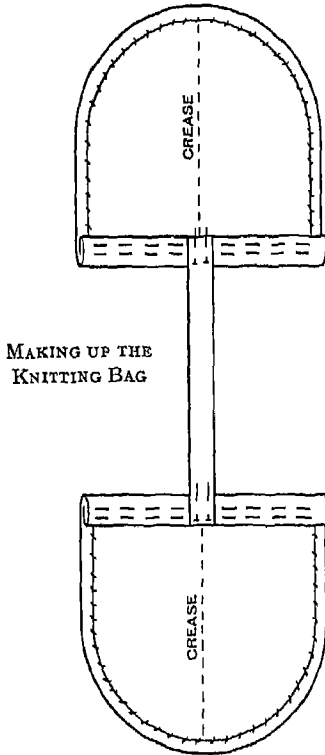
PREPARATION

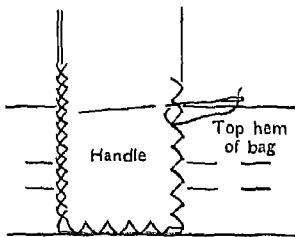
Previous knowledge —Joining two pieces of material together by means of running stitch.

Aim —The aim of this lesson is to teach the following points:—a good and easy method of making up a bag with a handle; the need for accuracy; neatness of finish.

Teacher's requirements —The finished bag The three pieces of the demonstration specimen. Needle, pins and wool.

Children's requirements —The work in hand and tools

1 Initial drawn on one side

2. Picture drawn on the other side

3 Initial worked in running stitch

4 Picture worked

DRAWING AND WORKING A PICTURE AND INITIALS IN RUNNING STITCH

Pieces folded to find centre

MAKING UP THE KNITTING BAG

Handle pinned to bag

Section shewing handle being sewn to top hem of bag

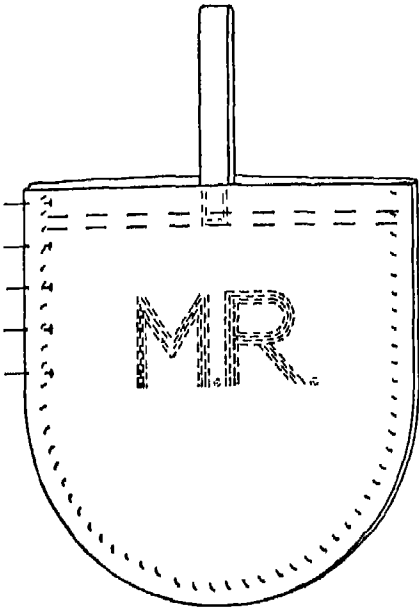
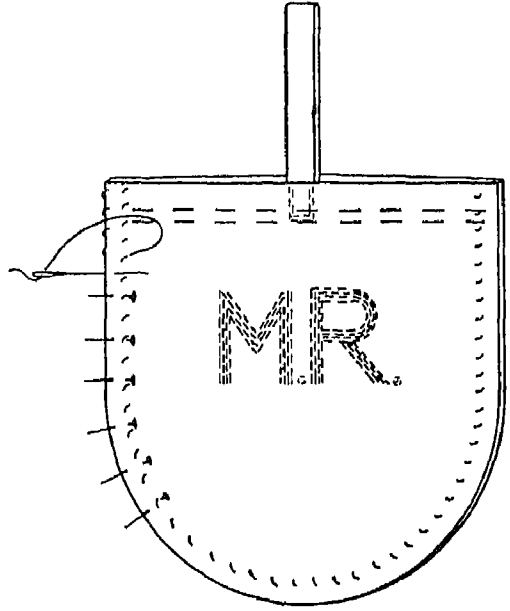
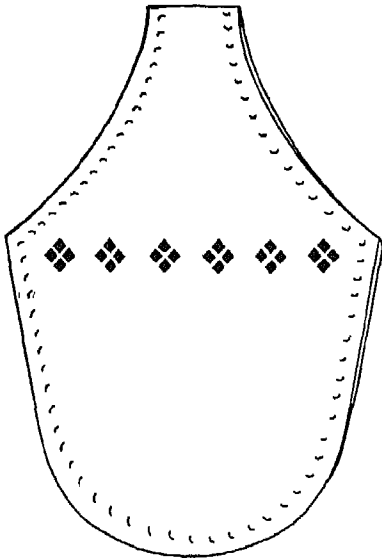
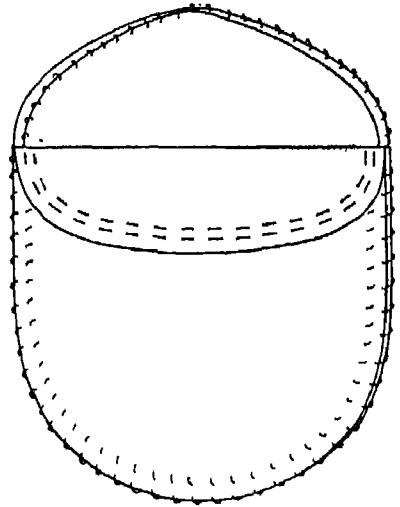
INTRODUCTION

Tell the class that the bags, some of which are nearly finished, have now to be sewn together like the bag which they have seen on a good many occasions, but not quite in the same way as the joining together which they have previously done.

PRESENTATION

Attaching the handle.—Using the working specimen, which is first held in the hand and then pinned upon the board, fold each piece in half and crease it, putting a pin on the creases in an upright position through the top hem This marks the centre of each side, and is necessary for the accurate fixing and sewing on of the handle. Fold the handle in half lengthways and crease it. Place the middle crease of each end of the handle, to the middle crease of each piece of the bag, on the wrong side (or inside), so that the end edges of the handle lie in a straight line with the inner fold of the hem Pin through all thicknesses of both handle and bag, again putting the pins in an upright position The children may now proceed to do this, the teacher supervising.

To sew the handle in position, put the needle up through the hem to come out at the junction of the handle and bag at the edge of the hem Run all round through all thicknesses in a square, keeping the stitches very even on both sides, and to finish off put the needle through the hem in the reverse way to that in which the running was begun, and cut off the surplus thread.

Joining the bag.—This will be found to be very easy now that the handle has been applied. Place the pieces together to fit exactly, and pin in the same way as when fixing the handle, placing the pins 2 in apart. Join up the bag by first tacking through the centre of the two hems, using stitches $\frac{1}{4}$ in in length, and then oversew to form crossed stitches over the hem edge. The stitches should be $\frac{1}{8}$ in in length, distance apart, and depth

1. PINNING THE KNITTING BAG TOGETHER

2 OVERSEWING IN PROGRESS

3 CURVED BAG DECORATED WITH STICK PRINTING

4 CURVED BAG WITH FLAP

MAKING UP THE KNITTING BAG

APPLICATION

Question the children to discover whether they have ever observed any other articles which could be made up in this way Ask them whether they know why the handle was sewn on before joining up the bag (because it is always easier when fixing a handle to deal with flat pieces than with round objects which cannot be laid flat upon a table).

EXPERIMENTAL WORK
MAKING THE PATTERN OF A DOLL'S PINAFORE

(Details and Demonstration of Lesson 24.)

PREPARATION

Previous knowledge.—Making a flat pattern of a curved bag.

Aim.—The aims of this lesson are:—to give some idea of the relation between a flat pattern and the shape of the body, to teach the meaning of width and length related to the body, to give facility in handling paper and scissors; to train the power of observation.

Teacher's requirements—A medium sized doll, wearing a simple pinafore of unbleached calico. A piece of paper equal in area to the size of the pinafore Pins, tape measure and coloured pencil. Scissors.

Children's requirements—Their own dolls. Pieces of paper of approximately the correct size for their dolls (if they are 12 in square, sufficient margin will have been given to allow for sizes of most dolls). Pins, tape measures, pencils and scissors

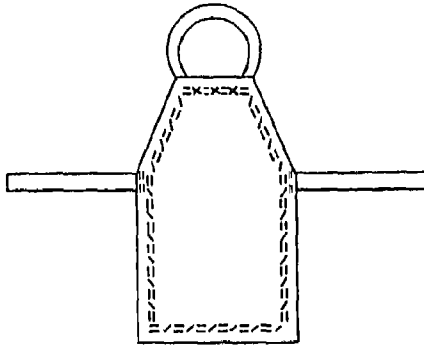
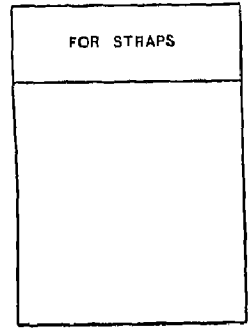
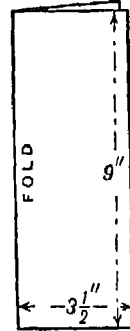
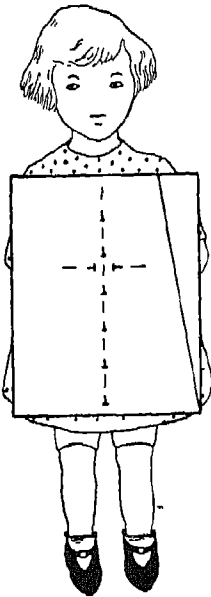
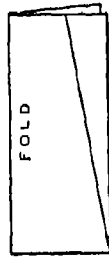
INTRODUCTION

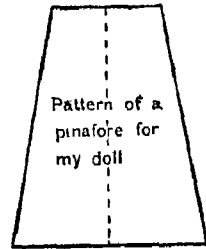
Place the doll without the pinafore in a convenient position on the table or teacher's desk, and ask the children to give the names of all the garments that can be seen on the doll. Ask them if they can think of any garment which they sometimes wear, but which the doll is not wearing. They will probably give the required answer—a pinafore. Let them give the reason for wearing a pinafore, and tell them that they are now to be shown how to make the pattern of it

Usually they have made a pattern by folding a piece of paper, and drawing on it the lines which give the shape, but now they are going to begin to make patterns of clothes, which are shaped to fit various parts of the body. Place the pinafore upon the doll, and question the class regarding the parts of the body which the pinafore is required to fit, i e. across the chest, which is called the *width*, and from the chest to the knee, called the *length* Thus the parts of the dress requiring protection are covered by a garment which is the right size, or which is said to fit, by being cut the correct width and length, according to the size of the person for whom it is being made.

PRESENTATION

Take the pinafore off the doll, and hang it in such a position that all the children may see its shape. Take the piece of paper which is to become the pattern, and fold into half lengthways, to mark the centre. Pin into the desired position on the doll, with the crease line to the middle of the doll. This is done because nearly everyone is alike on both left hand and right hand sides, and therefore only one half of the pattern need be shaped and the other side can be cut from it. Then mark with a pencil round the right-hand half, making it the shape required, —not too close to the arm hole so that the pattern is too wide, and not too far round to the back,—and making it long enough to cover the frock Supervision will be necessary at this stage, although it is not so important during this type of lesson, for some laxity in this respect is desirable in order to foster originality of ideas. When this has been done, remove the paper from the doll and fold it in half again Then cut right through the two thicknesses of paper. This will produce a whole pattern; show

Doll wearing pinafore

Pinafore opened out

Paper for pattern

Paper folded in half

Paper pinned on doll and shape drawn on right-hand half

Cut along line to make pattern

Finished pattern

FINISHED PINAFORE AND THE MAKING OF AN ALTERNATIVE PATTERN

this by pinning the pattern on to the doll, and then over the actual pinafore The children may cut their patterns, and write their names on them, and the words, "Pattern of a pinafore for my doll"

The cutting of an alternative shape of pattern is shown on page 317

APPLICATION

Tell the class that whenever a pattern of a garment is made, its shape and size must belong to the part of the body for which it is meant, i e. it must be the correct width, or size across, and also the correct length, or measurement down Let the children place tape measures across each other's chests and downwards from chest to knee, and suggest that they try at home to make pinafore patterns for small brothers or sisters, or for their friends.

SUGGESTED COURSE OF LESSONS FOR THE SECOND TERM

(First Half of Term)

During the first half of this term, the children may make some small articles or garments, choosing their own materials and using the stitches already learnt at school or in the home.

LESSON 1

Discussion.—A selection of articles should be shown typical of those which the children may wish to make. After adequate discussion the children should make their choice

LESSON 2

Pattern-making.—The children make their patterns. Those who have already made patterns at home may choose their material and cut out their articles entirely unaided. The teacher should help only when asked to do so.

LESSON 3

Stitches.—There should be a discussion with regard to the stitches to be used The teacher may question the class to discover the number of stitches known, and make a list of them on the blackboard, so that every child will know the names They may then begin to make their articles

LESSONS 4 to 11

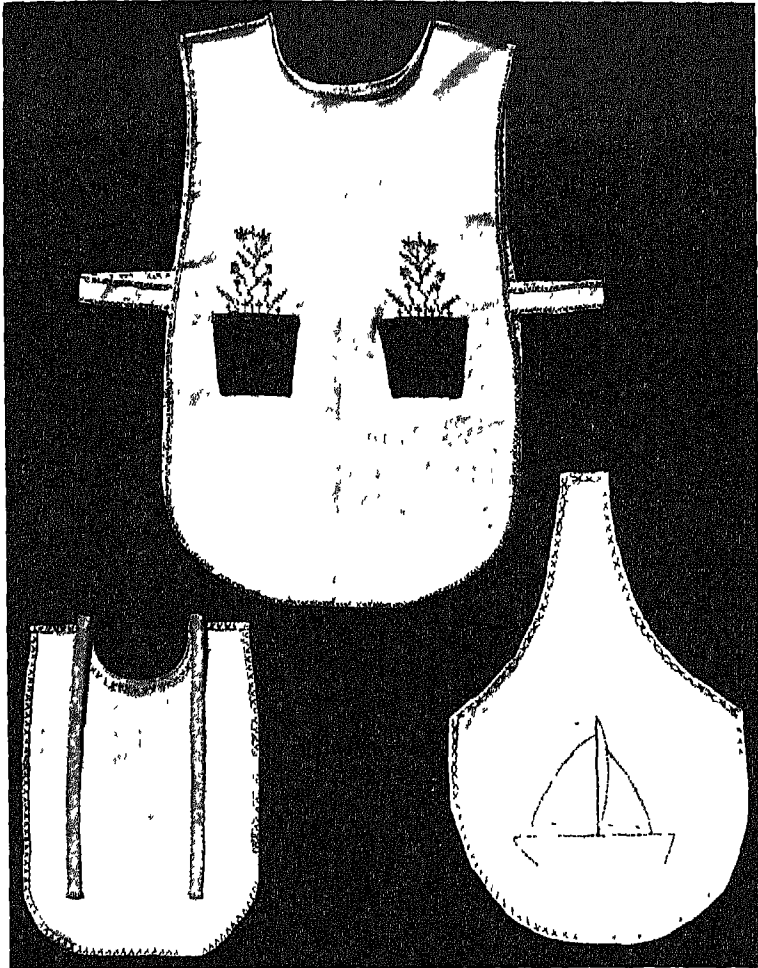
Practical work.—The children continue to make their articles The teacher's help, advice and encouragement should be freely given when required.

LESSON 12

Pressing.—The children should press their work and arrange a small exhibition of it for everyone to see

The children will love this type of work and the informal natural atmosphere which is created. They are now actually sewing because they really wish to make something for themselves by their own efforts. Many of them will gain the self-confidence which is an important possession in craft work of any kind.

(Second Half of Term)

During this half term the first actual garment is constructed This is a baby's feeder, which is very suitable, and gives scope for new processes,—such as the management of a convex curve, the use of tape, and stick-printing as a form of ornamentation.

A Group of Articles to Show Treatment of Curves—
A Pinafore, A Feeder and A Bag

LESSON 13

Pattern-making.—The children make the pattern of the feeder. The details of this lesson are given on page 320.

LESSON 14

Cutting out.—The teacher may now arrange for the class (either in pairs or in fours) to cut out the feeder from one or two large pieces of material The other members of the class are occupied with knitting; they may make vests in purl and plain ribbing for dolls or for babies, and in finer wool than has hitherto been used.

LESSON 15

Turning hems.—The children continue to cut out their feeders, and commence to turn down $\frac{1}{4}$ in. hems along each side.

LESSON 16

Practical work.—The children now fix the hems, which may be held in place according to their own desires.

LESSON 17

Practical work.—The children turn $\frac{1}{4}$ in hems along the shoulder edges of the feeder and a wider hem at the base. An alternative treatment which appeals to the slower workers is a fringed edge, the width of the fringe being 1 in. or less. The actual fraying out should not be done until the decoration has been finished.

LESSON 18

Neatening the neck curve.—A demonstration of the use of $\frac{1}{4}$ in. tape for neatening the neck curve is now given. The details of this lesson are given on page 324.

LESSON 19

Practical work.—The children continue to neaten the necks of their feeders with tape. The previous lesson may have to be continued, and will certainly need to be revised.

LESSON 20

Practical work.—Needlework and knitting.

LESSON 21

Stick printing.—The teacher now gives a demonstration of stick printing for use in border patterns on the feeders The details of this lesson are given on page 326.

LESSON 22

Experimental work.—The children may now experiment on scraps of material.

LESSON 23

Practical work.—The children should apply the knowledge gained from the lessons on feeders Others continue with knitting

LESSON 24

Pressing.—The children must now finish off and press their work.

THREE LESSONS IN DETAIL FOR THE SECOND TERM

THESE three lessons, like the detailed lessons given at the end of the First Term's work, are now given in the order in which they will be required.

MAKING THE PATTERN OF A FEEDER

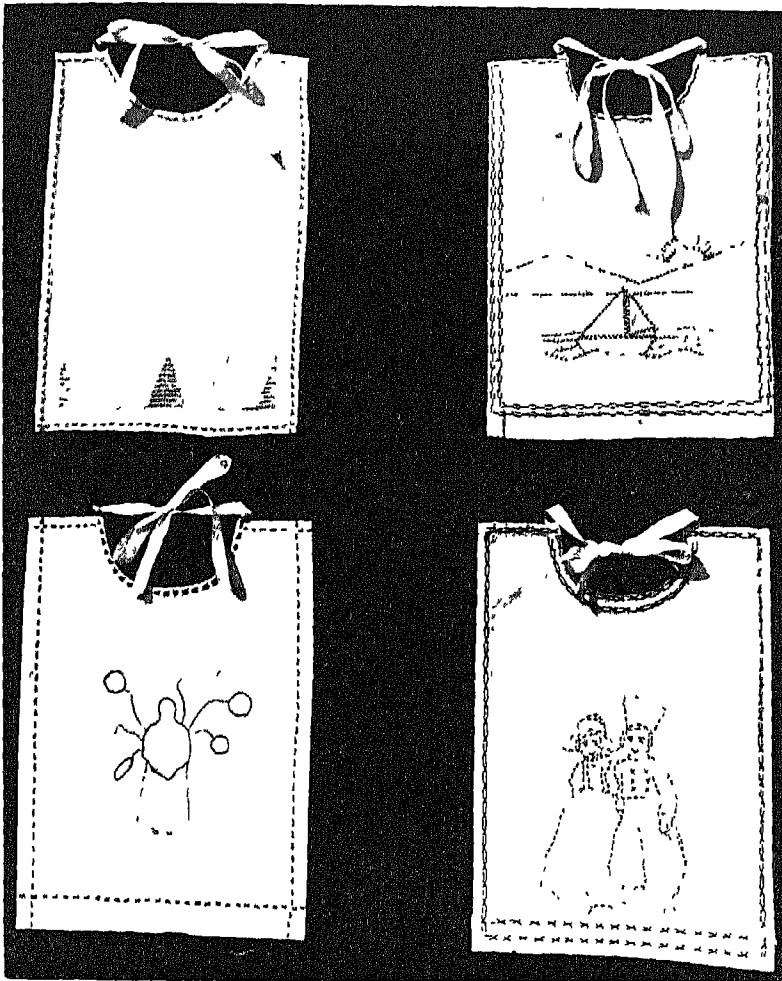
(Details and Demonstration of Lesson 13.)

PREPARATION

Previous knowledge.—Making the pattern of a bag, and also the pattern of a doll's pinafore, shaping it upon a doll.

Aim.—The aims of this lesson are.—to teach a method of making a pattern of a feeder by paper folding; to train children in observation and accuracy.

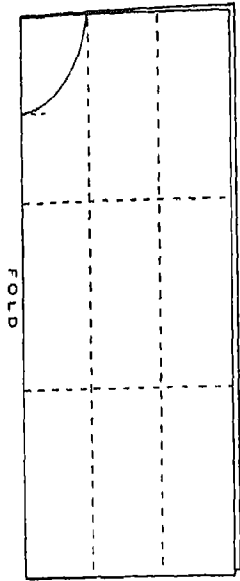
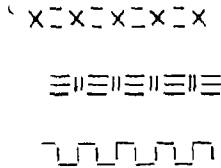
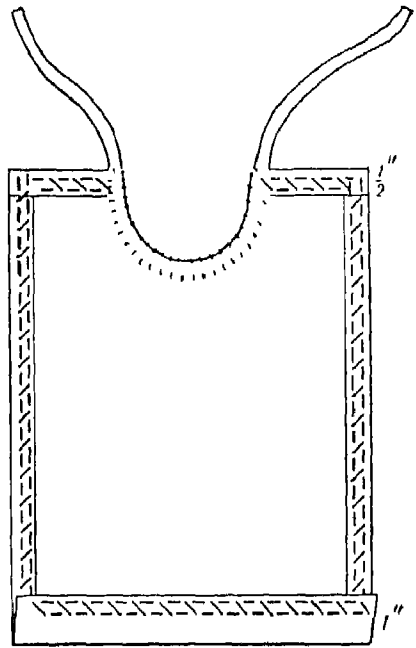
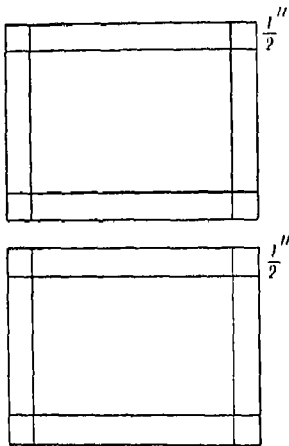
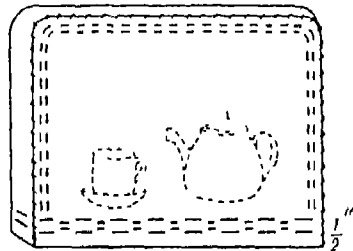
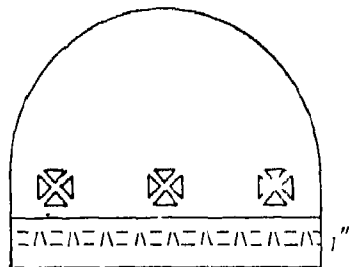
Teacher's requirements.—A finished feeder hung up in a convenient position. A pattern of the feeder Red chalk, blackboard, drawing pins, scissors. A piece of plain white paper for demonstration purposes, cut twice the size of the feeder, i.e. 24 in. by 20 in.

Children's requirements—Pieces of paper 12 in. by 10 in. Pencils and scissors.

A Group of Feeders, Showing a Varied Treatment of Decoration

INTRODUCTION

Show the children the finished feeder, placing it on a child Tell them that such an article is not used by children as old or as big as they are, but by little children who are not able to feed as cleanly as older ones A feeder thus protects the clothes just below the chin, when the child is feeding Hang the feeder in a position convenient to all State that you have cut the paper the right size for them as no special baby could be measured.

PRESENTATION

Pin upon the board the oblong of paper to be used for demonstration purposes, with lengthway downwards, using three pins as illustrated Fold the paper in half lengthwise, keeping the fold to the left-hand side The children may now place and fold their papers upon the desks, the teacher supervising. Fold the paper again into three, lengthwise, making two creases, and then into three across the width, again making two creases.

MAKING THE PATTERN OF A FEEDER

MAKING PATTERNS OF A FEEDER AND TEA COSY

The children may now crease their papers, the teacher helping if necessary.

To shape the neck curve—Show, by placing a flat piece of paper against a child's chest, that the part which touches the throat will not lie round it unless the paper is specially shaped by a curve The teacher may tear the paper away from the throat in order to make a roughly shaped curve. Tell them that the curve is now to be drawn. Measure down the fold to a point half-way between the edges of the paper and the first transverse crease, and draw a line to the first vertical crease. Curve from the point where the first vertical crease touches the edges, to the line at the fold Open out the pattern to half, keeping the fold at the left hand, and cut through the neck curve on double paper, so that the curve is the same shape and size on both halves The pattern is now ready for cutting out in material

APPLICATION

Question the class to discover if they can think of any other garment which needs to be cut on double paper in order to produce two halves of equal shape and size

II

NEATENING A CURVED EDGE BY MEANS OF FACING WITH TAPE

(Details and Demonstration of Lesson 18.)

PREPARATION

Previous knowledge—Turning down a hem along a curved bag (a convex curve).

Aim—The aim of this lesson is to teach the following points—a practical method of dealing with a concave curve; the use of narrow tape for neatening purposes; training in resourcefulness and observation.

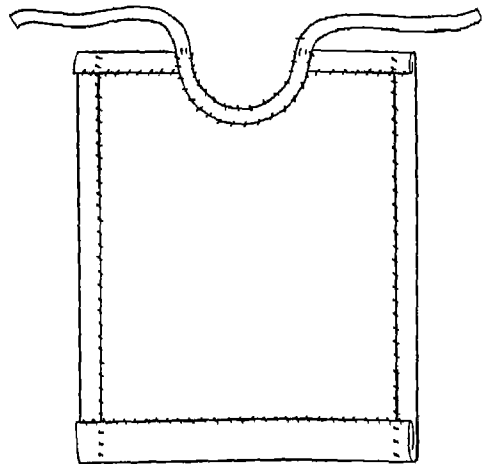
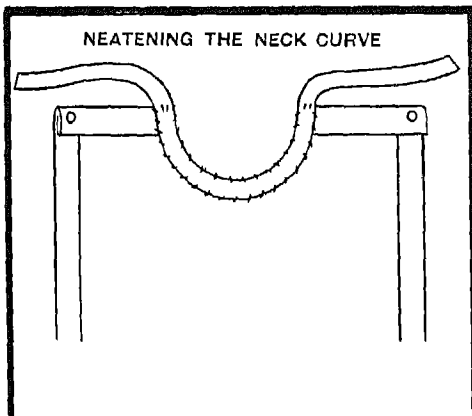
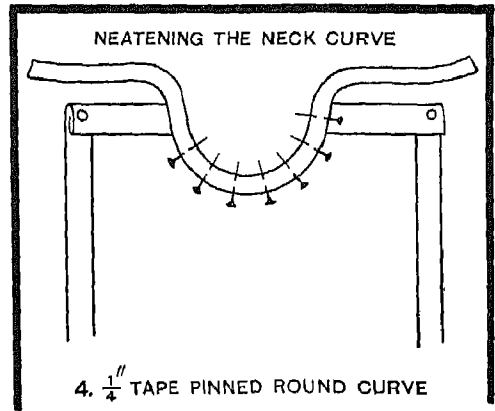
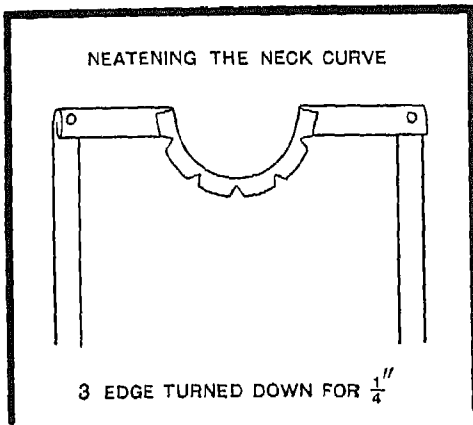
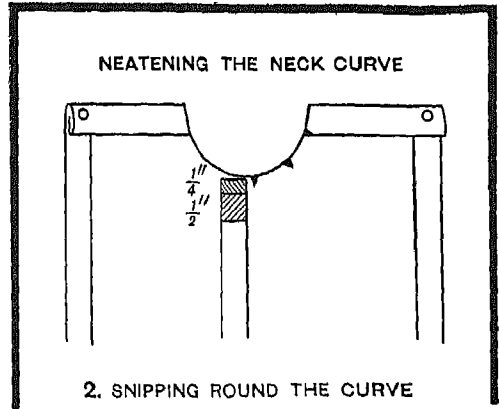
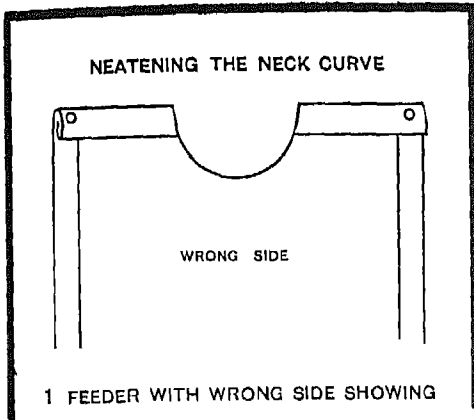
Teacher's requirements—A demonstration specimen, 20 in. by 18 in., made of unbleached calico, to give a clear idea of wrong and right sides; it should be cut to represent the neck curve of the feeder (the curve needs to be fairly shallow), the shoulder hems should be turned down and hemmed on to the right side. A length of brightly coloured wool braid 1 in. wide. Wool in contrasting colours, black wool for tacking. Needle, pins, scissors.

Children's requirements.—The work in hand and tools. 25 in of cotton tape, ½ in wide.

INTRODUCTION

Ask the children whether they remember turning down a hem along an edge which was not straight, but curved in shape. The knitting bags which they made were curved Show a bag and the feeder, and ask the class to observe the difference in the shape of the curve; the bag curves outwards, the neck of the feeder inwards, so that it fits round the baby's neck On the bag, the raw edge was too large to lie down flat when turned down, but on the neck curve of the feeder the edge will be found to be too small to lie flat; it has therefore to be specially treated

PRESENTATION

Snipping the curve.—Pin the demonstration piece upon the blackboard, with the neck curve at the top and the wrong side facing the class. Tell the children to place their feeders on their desks in exactly the same position Supervise this (the right side of the children's work will be the side away from which the hems are turned, and therefore will be placed downwards on the desk). In order to make the raw edge lie flat when turned down, it is necessary to cut it down, this will make small openings which allow the intervening pieces to lie flat. The process is called snipping, and has always to be done round a curve of this shape. Show how the snipping is done, using a marker to measure the depth of the snips,—

NEATENING A CURVED EDGE BY MEANS OF FACING WITH TAPE

snip almost to the depth of the first division on the marker. The class may snip the raw edge along curves, the teacher helping. Tack the raw edge over on to the wrong side, making it lie as flat as possible, using small tacking stitches and ordinary tacking cotton. The children may tack the turnings in place.

Pinning the tape in position.—Find the middle of the length of tape by creasing, and pin it to the middle of the feeder, so that one edge of the tape comes to the fold at the edge of the curve. The tape is straight, so that it will be a little troublesome to make it lie flat round the curve. Continue to pin the tape over the raw edge so that it lies flat along the lower edge and is slightly frilled in appearance along the edge which comes to the fold. The children may now proceed to do this. Demonstrate the holding in place of the tape at the lower edge by means of hemming, which has already been learned. The class may hem the tape in place,—this will make it necessary to carry over the remainder of the lesson into another period.

When all the hemming is completed, revise oversewing. Tell the children that another use for this stitch is to sew on tape to the edge. Demonstrate this, showing that the garment should be held with the wrong side to the worker, so that the loose edge of the tape may be evenly eased. Hem down the tiny pieces of the feeder at the ends of the neck to the tape, working from the right side.

APPLICATION

Invite the children to suggest further uses for tape which might be applied in a similar manner.

STICK PRINTING

(Details and Demonstration of Lesson 21.)

PREPARATION

Previous knowledge.—Making up designs for borders to be worked in tacking stitch.

Aim.—The aims of this lesson are:—to teach a method of decoration by means of printing with specially prepared blocks; to give an idea of spacing and proportion in the arrangement of units to form border patterns.

Arrangement of lesson.—This lesson will consist of a series of short demonstrations to groups of from six to ten children. No special apparatus is necessary apart from a few printing sticks and a feeder prepared for the printing of the border pattern. The children will also work in small groups owing to the necessity for the teacher's supervision, and the difficulty of providing every child with a set of printing sticks and colours.

PRESENTATION

Show the children the printing sticks, which are made of specially prepared smooth wood cut into shapes at both ends. Show also the article to be decorated with a simple border pattern, prepared for printing by having two rows of tacking as guides between which the pattern is to be made, and pencil spots the required distance apart for the spacing of the shapes. This must be thought out and the preparation completed before the printing can be done, the spacing depends upon the shape of the article, and the area available.

Method of printing.—The colour, which should have been prepared before the lesson, must be of a permanent nature, e.g. aniline dye, or spirit stains such as are used in staining leather. Make small pads of two or three thicknesses of felt, flannel, or even blotting paper, and on to them pour a very little colour, a separate pad being required for each colour. Pin the article to be decorated quite straight, and with the right side uppermost, on a drawing board covered with new blotting paper. Hold the stick in an upright position and place the chosen end first on the pad of colour, and then on the correct spot on the article to be printed. This must

be done quickly and firmly, the stick must be removed by an upward movement,—it should not be drawn across the surface of the material. The stick must be cleaned with turpentine after use. In this case very simple borders, using one or two shapes, only should be used. The teacher prints on the feeder, or on other articles, until everyone has been shown the method. Then those members of the class who are ready to do so may print their own patterns. As there are generally nine simple shapes to each set of sticks, four children can print at a time if they are arranged at the teacher's table, the rest of the class being engaged upon either needlework or knitting.

SOME SIMPLE SHAPES

BORDERS USING SHAPES SHOWN ABOVE

STICK PRINTING

SUGGESTED COURSE OF LESSONS FOR THE THIRD TERM

THE first half of this term may be given to decorative stitchery, the children making articles for household or classroom use. The articles may be made of linen, dyed Russian crash, donkey-boy cloth, or other material not hitherto used during this year The texture and colouring of the materials selected should possess a decorative and aesthetic value The shape of the articles should be extremely simple,—square or oblong. Articles which readily suggest themselves are tray cloths, cushion covers, table cloths, runners and centres, chair backs, toilet covers, cot covers and perambulator covers

From their experience with printing sticks for border patterns the children will realise how such a pattern is formed, they may now extend their experience in this direction by stitchery, using any stitch known to them. The edges of these articles may be neatened by fraying or by a hem of suitable width, secured in any way that seems desirable to both child and teacher Materials like dyed Russian crash and donkey-boy cloth, are narrow in width, and may therefore remain neatened by a selvedge thread on two sides, provided that the width adapts itself to the required size, leaving only two edges to be neatened

In order to lessen the difficulty of cutting out these various articles, the children must understand that if they are making articles for the home they must bring patterns of the size required, or at least the measurements written down.

Any unfinished knitting may be continued at odd moments Then the child may make any knitted article she wishes, using any other stitches she has learned at home

LESSON 1

Discussion of work.—The teacher should show a selection of suitable finished articles, also materials and threads from which the children may make their choice If any scraps of material are available, let the children take them home to show their parents, in this way encouraging a spirit of co-operation between school and home life Ask the children to bring from home the pattern or size of the article they wish to make An excellent plan is for the teacher to duplicate lists of suggestions for articles and probable prices for the parents to see. The required size can then be written against the chosen article on each child's list It is recommended to provide a wide choice. The children may continue their knitting during the odd moments of this lesson, and begin their new garments.

LESSON 2

Pattern making and cutting out.—The teacher must correct patterns and the children begin to cut out their articles, they will have to be dealt with individually for some time. Since the correction of patterns and cutting out will probably extend into the fourth or fifth lesson, those who are not cutting out at first must be provided with knitting, or some other occupation As the children cut out their articles they may proceed to turn hems and to tack them, using either a marker, or, if they are able, a tape measure for this purpose.

LESSON 5

Decorative stitchery borders.—The details and demonstration of this lesson are given on page 329

LESSON 6

Practical work.—The children continue their work, which will be in all stages of progress, and the teacher continues to deal with them individually The specimen containing borders in stitchery and the finished articles should be displayed during the whole series of lessons.

LESSON 7

Border design.—The children, having designed a border pattern by means of working practice designs on scraps of material, present them to the teacher for her approval The teacher will give a demonstration on the arrangement of border designs upon various articles, the details of which are given on page 330.

LESSONS 8 to 11

Practical work.

LESSON 12

Pressing.—The children press and finish off their needlework and knitting

TWO LESSONS IN DETAIL FOR THE THIRD TERM

THESE two lessons, like the other detailed lessons, are now given in the order in which they will be required.

DECORATIVE STITCHERY BORDERS

(Details and Demonstration of Lesson 5.)

PREPARATION

Previous knowledge.—Tacking stitch used decoratively, and working pictures and initials in running stitch. Stick printing.

Aim—The aim of this lesson is to teach the following points.—the further application of tacking stitch for the actual enrichment of spaces, the uses of colour for decorative purposes, training in resourcefulness in using stitches already known by placing them at new angles for decorative purposes.

Teacher's requirements—A finished article similar to those which the children are making, and teaching specimens which were used in the previous lesson on "The arrangement of border designs" Blackboard, chalk, etc Needles and wool.

Children's requirements.—Work in hand, and tools

INTRODUCTION

This lesson is really a continuation of the previous one, and is the practical application of the drawing of border designs in stitchery on material. Return the children's papers of designs which have been marked, and give the necessary comments.

Then pin up on the blackboard the unfinished article to be worked.

PRESENTATION

Question the children to draw attention to the fact that they have, at some time previously, worked patterns of one kind or another upon articles Remark that when straight patterns are to be used, a better and cleaner way than pencilling lines is to tack or crease them

Method 1. *Tacking the guiding lines*—Pin the demonstration piece upon the blackboard and show guiding lines by means of a line of tacking 2 in below the hem (using fine wool), with a second line 1 in. below the first, giving a space of 1 in between the two lines for the working of the border Tack the two short sides and then the two long sides, if the border is to go all round. In dealing with corners the simplest plan is to cross the lines of tacking, which causes the corner automatically to form a right angle.

Method 2 *Creasing the guiding lines*—Crease the material as for turning a hem, where the border is to be worked, open out and it is ready for the decorative stitchery. This method is more suitable for small articles, as the creases do not remain for very long.

Show both methods and tell the children to choose the way they find more easy, using markers or tape measures to obtain even distance from the edges of the hems.

The stitch to be shown is catch stitch, which is already used upon the hem; adaptations of any stitches known, however, are equally suitable. Demonstrate the working of the stitch as follows:—Place the needle in from the back of the article and bring it out a little distance from the corner on the line of tacking nearest the hem, leaving the end of thread to be darned later

into the stitches on the wrong side Put the needle in ¼ in down from right to left, so as to make a stitch in a slanting direction towards the inner line of tacking; then pick up a piece of material about half the length of the slanting stitch Work the slanting stitches all the way along, picking up on the tacking line and below it alternately.

The corner.—The arrangement of this will be rather difficult and the children will need individual help, as the stitches used will differ both in shape and size, and no hard and fast rule can be given to children of this age They must, however, be told that the arrangement of the pattern at a corner is important, and they should be encouraged first to draw the probable arrangement on paper, when it will be found less difficult to copy in stitchery. Work all round the hem in catch stitch, and then all along the inner tacking thread Work a row of upright stitches in between these two rows to connect them, and so complete the border

If the article is to be decorated down the short sides only [see method (1), page 332], work the stitchery from inner fold of hem to opposite fold of hem, and fasten off by turning the material and darning the ends of thread into the stitches on the wrong side. When squares are formed [see method (3), page 332], single guiding lines may be creased These may be worked as a double row of large running stitches, one double row starting in the centre of a side, and a second double row placed between the centre row and the inner hem fold, so as to make four divisions along each side, or sixteen divisions in all. The end of thread on the wrong side must be darned in to finish them off neatly. Corners or spaces may be further enriched by Y stitches as illustrated on page 333—*Simple Spot Pattern.*

APPLICATION

The class should be reminded that the methods shown of working designs may be applied to the decoration of many articles and garments, and that good effects are to be gained only by carefully thinking out:—(*a*) the placing of the design according to the size and shape of the article; and (*b*) careful and accurate stitchery, using good colours.

ARRANGEMENT OF BORDER DESIGNS

(Details and Demonstration of Lesson 7.)

PREPARATION

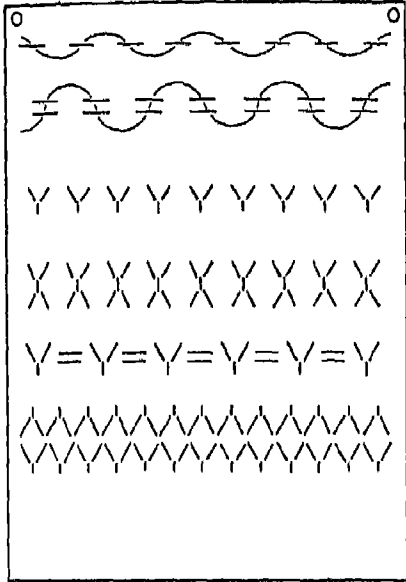
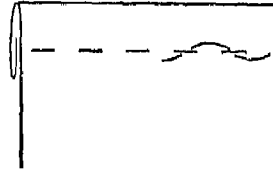
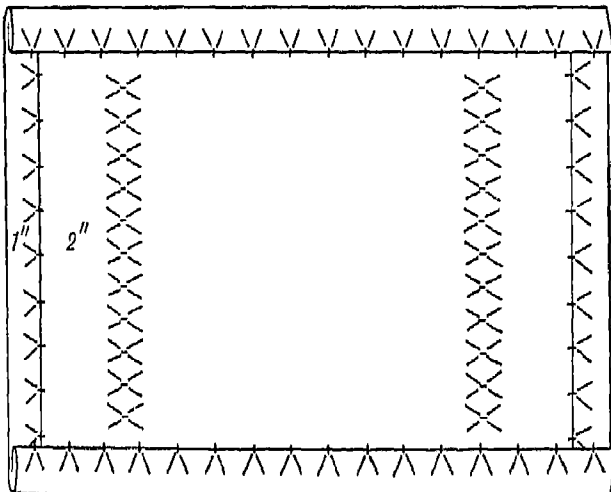
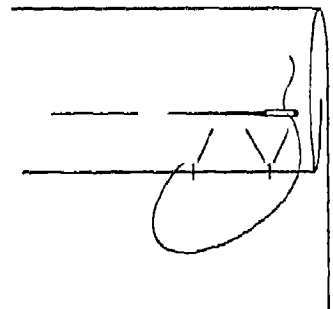
Previous knowledge.—The use of units to form border designs by means of stick printing; filling in a space to be decorated by a picture worked in running stitch

Aim—The aims of this lesson are.—to teach simple rules for the placing of patterns; to develop powers of imagination, observation and accuracy

Teacher's requirements—A finished article similar to that which the children are making (a cushion cover measuring 18 in. by 12 in is taken as an example). Illustrations showing two other possible arrangements of designs Blackboard and chalk Drawing pins. An unfinished piece of a cushion cover of the same size as the finished one. Needles and wool of a contrasting colour.

Children's requirements—The work in hand, and a piece of plain paper, 18 in. by 12 in. Pencils

INTRODUCTION

Show the finished cover, of which the hems are 1 in. wide, turned on to the right side, and held in place by Y stitch which is similar to catch stitch. Point out the borders, which lie the width way of the cushion, 3 in in from the side hems, and 1 in. wide They are formed of two rows of catch stitch, joined by upright tacking stitches. Tell the class that they are to be shown how to place the design in different ways upon a cushion cover.

DEMONSTRATION OF DECORATIVE BORDERS

Wrong side showing end worked into stitches

CUSHION COVER 18" X 12" DECORATED WITH Y STITCH

Detail of Y stitch

DECORATIVE STITCHERY BORDERS

PRESENTATION

Pin the finished article in a convenient position, and the unfinished article upon the blackboard. Remind the children that the amount of space available for the borders depends upon the shape and size of the article,—whether square or oblong large or small These points must be considered before putting any stitching upon the articles, because the size of the stitches must be chosen so that the finished effect is right

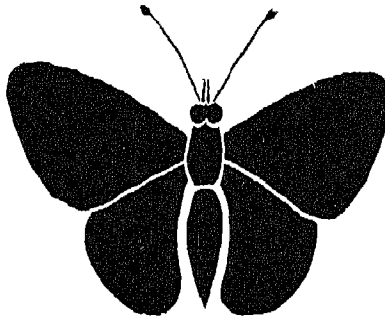
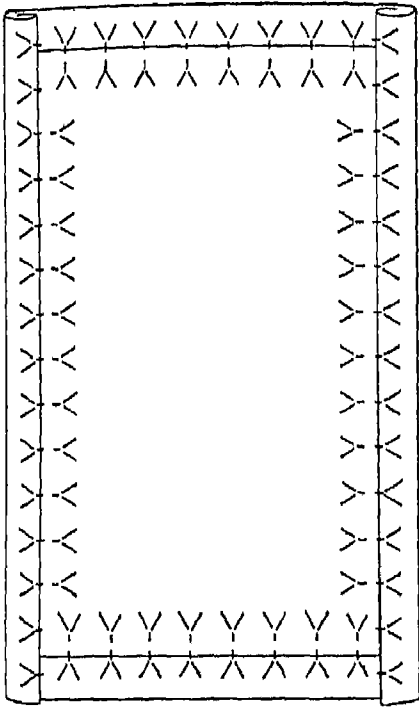
In this case, tacking-stitch borders can be put in various positions in the space, which everyone can see is bounded by the hems. There are three ways of arranging borders of stitchery:—

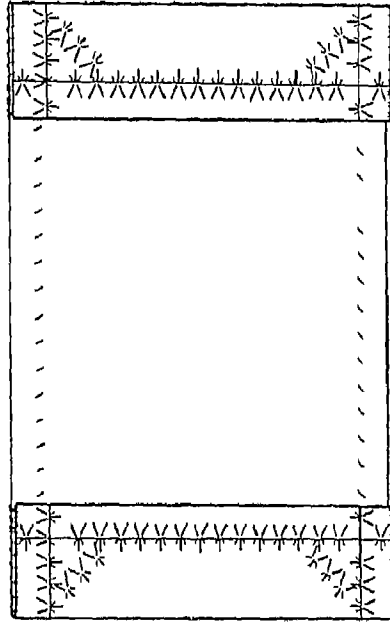
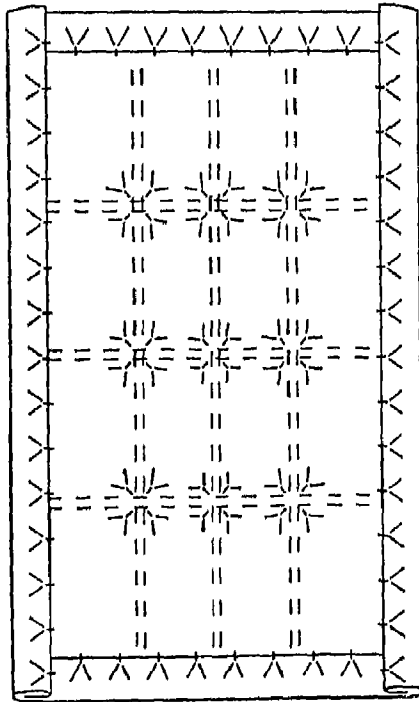
(1) They may lie along the two ends, as shown upon the finished cushion cover
(2) The border may go all round below the hems. Show this effect to the class by means of illustrations passed round, or by drawing upon the blackboard
(3) The available space may be divided into squares. Show this effect also by illustrations

Tell the children they must think out for themselves which method they would like to use on their own work A few children may possess independent ideas about the arrangement of designs, and they must be allowed to apply them provided they are correct in the essential details, i.e. that the lines of construction are followed. Ask the children to draw borders of stitchery upon the papers with which they are provided, taking not only those illustrated, but any which appeal to them, using creases to produce faint lines which will act as guiding lines The creasing may have to be demonstrated, but the children should know by this time what is meant by straight lines without the necessity for being shown how to produce them When the drawings are finished they must be collected and marked by the teacher, who will give them out again at the commencement of the next lesson.

APPLICATION

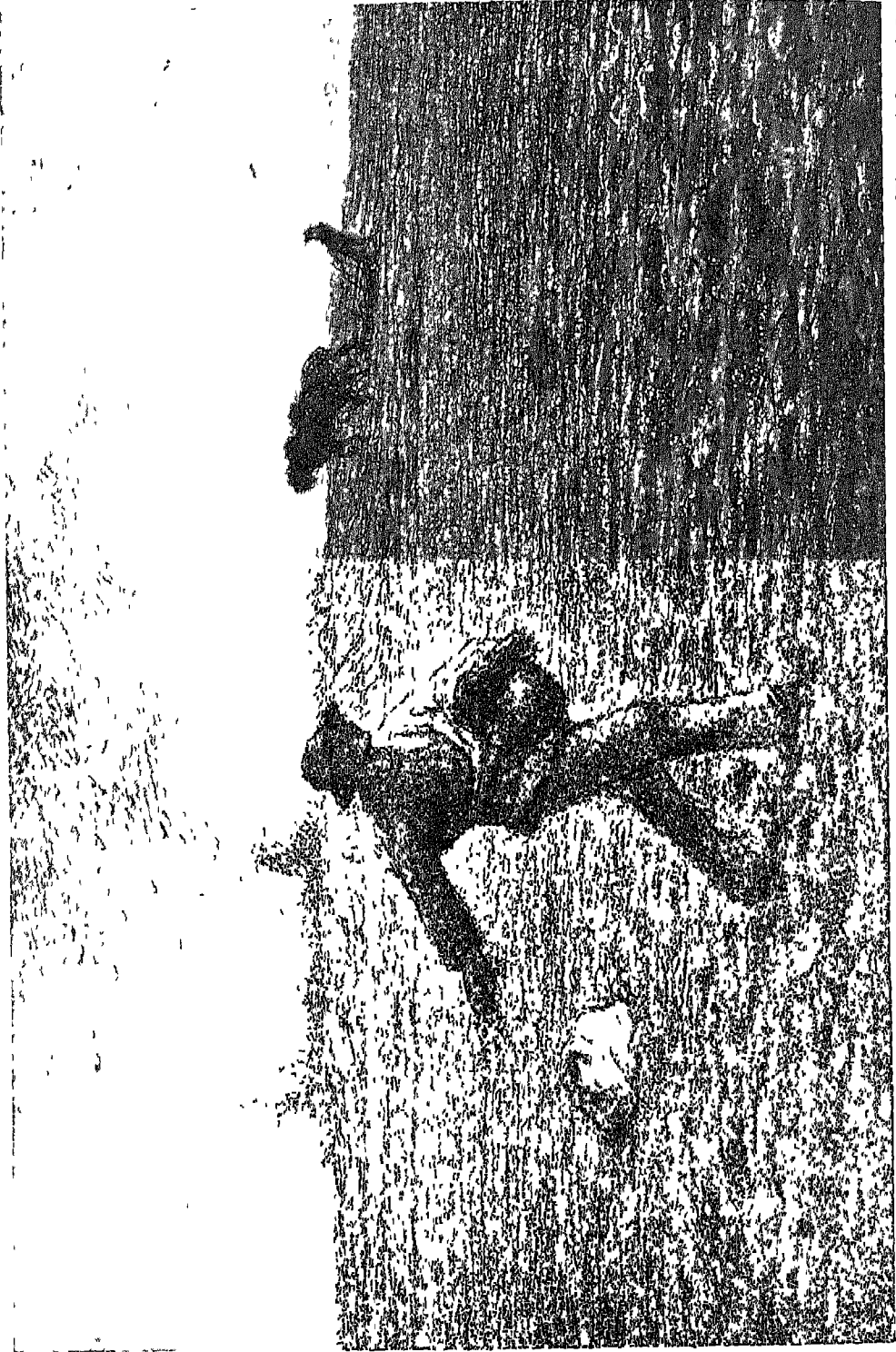
Draw one or two different shapes on the blackboard, and ask members of the class to come out and show where border designs might be worked This will awaken their minds to further possibilities

BORDER ROUND CUSHION AND 2 IN DOWN EACH SIDE

BORDER ROUND HEM AND 1 IN. ROUND INSIDE

SIMPLE SPOT PATTERN

BOOK COVER DECORATED WITH BORDER DESIGN

ARRANGEMENT OF BORDER DESIGNS

SECOND YEAR'S COURSE OF NATURE STUDY

(There are six Class Pictures (Nos 123–128 in the portfolio) associated with the Second Year's Course. They are fully described in the Reference Book.)

From the picture by Millet] THE SOWER [Photograph Braun & Cie

FOREWORD TO SECOND YEAR'S COURSE

IF the first year's course of Nature Study as set out in Volume I has been followed, the children will by now begin to have some acquaintance with common flowers, with hedge plants in different stages of growth, with butterflies and moths, they will have some idea how to pursue these interests for themselves It is hoped that, whether they have the same teacher or not, it will be possible to make constant reference to their first year's experience, and also to give them encouragement in carrying their discoveries further, by helping them with collections and individual records, and by devoting some part of the time allotted to Nature Study to the discussion of their independent observations

With each year the principle of discovery for oneself should grow clearer, and at the same time good reference books become more and more essential for confirmation of observations and for identification of new forms In the second and third years it is proposed that a good deal of time shall be devoted to a study of birds, and as very little outlay is required in the way of material, it is possible that some money might be spent on establishing a good, if small library, either for each classroom, or better for a Nature Room, which can become the focusing point for all the Nature Study of the School

The following books will be found useful.

Birds of the British Isles and Their Nests, by T. A. Coward, in three volumes (Warne), is excellent for both teacher and children, especially on account of its coloured plates

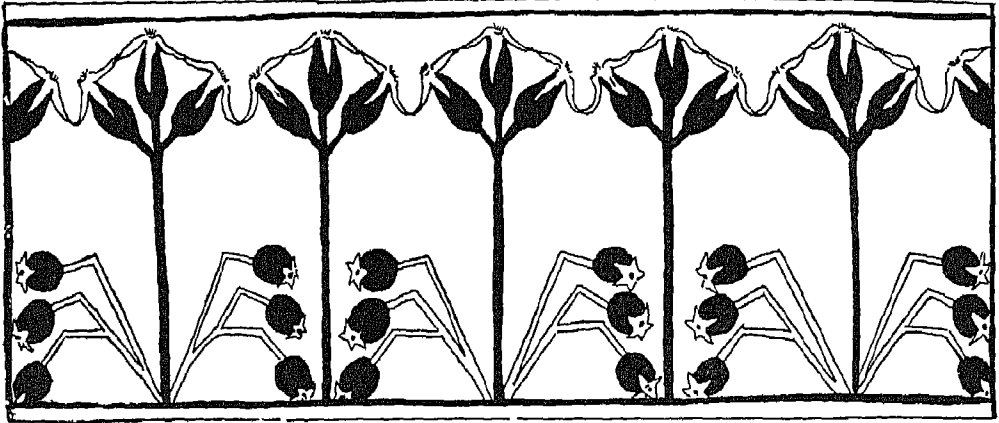
Sanders' *Oxford Book of Birds* (O U.P.), though much smaller and therefore cheaper, is also a valuable reference book, with coloured plates

An Introduction to Zoology (Macmillan), by R Lulham, provides a most useful help to the study of all the common invertebrate animals of the garden, pond and field

Bird Studies (O U P), by Westell, suggests many interesting lines of inquiry for children

It is far better to have a few reliable books than to have many cheaper ones, which do not for long serve any purpose because the information they give is too slight or not trustworthy. Miss Lulham's book, though intended for students, will be invaluable to the teacher in identifying and studying common creatures, and for its suggestions for field work. The books recommended for the children's use (see Volume I page 303) will still be needed.

It has not been thought necessary in this second year's course to repeat a programme giving the detailed succession of lessons, as a general seasonal plan was given in the first volume Needless to say, the teacher will re-arrange and apportion the subject matter according to his or her individual conditions As before, each study has been considered as a whole, though the lessons may actually be separated by some weeks or months in order to proceed by the appropriate stages The lessons on Birds and the Earthworm are held over to the next volume

I. HIPS AND HAWS

POINTS FOR THE TEACHER'S CONSIDERATION

IN the autumn of the second year the study of hedgerow fruits would continue along the lines begun in the first year. Fruits would again be collected, those already known recalled, and new ones added to the list Their means of dispersal would again be referred to, and it would be suggested that some of those which had not been particularly examined should now be looked at more closely. The children could be allowed some choice, and with the aid of needles or penknives should find the seeds, and all the particulars they can about the characteristics of the fruits, making drawings to illustrate what they find Class lessons would follow two or three periods of independent work In making records children might be allowed the choice of pencil or water colour, either free brush work or flat washes with a pencil outline Colour not only gives pleasure to the child student, and a greater sense of mastery of material, but it plays also an important part in portraying the relation between fruits and animals

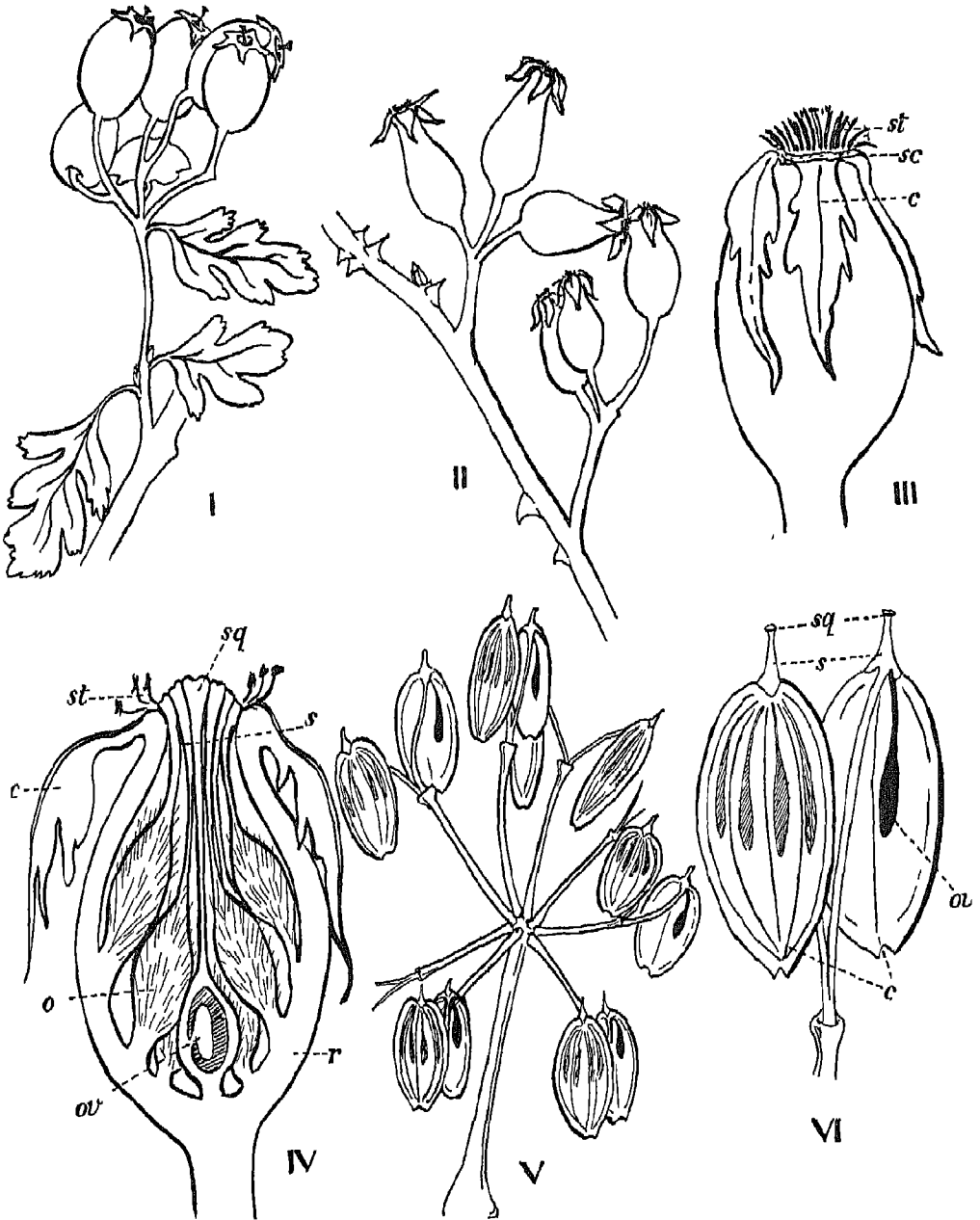
It is assumed in the succeeding notes that the children have already had the opportunity of becoming familiar with the material, and that some of it has been examined carefully.

THE LESSON

Aim.—To understand the structure and means of dispersal of (*a*) Hips, i e Wild Rose fruits, and (*b*) Haws, i e. Hawthorn fruits.

Material.—Sprays of both fruits, sufficient for children to share in pairs A good-sized branch of each to show its growth Some hips cut lengthwise

Introduction.—Question the children about where both these fruits grow They are found on the outside and top of the hedge, and both belong to prickly bushes. The Hawthorn may become a tree with a main stem or trunk; the Wild Rose, like the blackberry, clambers over the hedge by means of down-curved hooks or prickles The Hawthorn has spines which are not mere skin outgrowths, but come from the inside of the stem. Strip the skin off a small twig of each to show the difference.

PLATE 1

SKETCHES FOR THE BLACKBOARD

HAWTHORN I Fruits, showing growth and arrangement

WILD ROSE II Fruits of Dog Rose, showing growth and arrangement III Rose hip *c*, calyx, *st*, remains of stamens, *sc*, scar left by petals IV Vertical section of fruit *r*, receptacle, *s*, styles, *sq*, stigmas, *o*, ovary, *ov*, ovule, *c*, calyx, *st*, remains of stamens.

WILD PARSLEY V Collection of fruits VI Single fruit *c*, carpel, *ov*, ovule, *s*, style, *sq*, stigma

The thorn of the Hawthorn remains as part of the twig. These thorns and prickles make it very difficult for an animal to eat either plant

I. Give the children the small sprays and let them look at the way the fruit grows. In the Hawthorn there is a cluster of fruits, with stalks of the same length, coming out between the branch and a leaf. In the Wild Rose there may be two, three or more together, but they are spread out over the whole branch, and are not arranged in clusters Rose hips are the larger and they are scarlet in colour haws are of a deep crimson colour

II. Let the children examine the haws separately and peel off a little of the skin. Ask what they find (Whitish pulp, soft but not juicy.) Ask of what other fruit it reminds them. (Holly) When the pulp is scraped away a hard stone is found. The fruit is really a little drupe, like the plum and holly Some of the children will probably have cracked the stones, and found the seed inside. If they have not, crack a few for them to see Notice the small projections at the top of the fruit Occasionally there is a little crumbling, dark powder also What are the projections and powder? (The remains of the flower, the stamens and calyx) The petals, which were also on this little rim, have dropped away The ovary has turned from green to red (this change would have been watched during the preceding summer) and has grown much larger to form the fruit.

Look for any signs of their having been pecked by birds, and suggest that the children shall look on the hedges In January, 1931, a large number of haws were found on the ground under a tree, with the pulp of each scattered in three or four pieces, and the stone neatly cracked in two and empty, thus the ends of the plant in providing for its seeds to be dispersed were defeated No tracks in the mud betrayed the marauder A few untouched fruits remained on the tree. Could some bird have torn them open, cracked the stone and dropped the bits after eating the seed? (Probably a field mouse or field vole.) Instances of this kind are interesting because they show that adaptations to life may be imperfect, that a plant has to take chances and risks, or even that we may be wrong in attaching a particular value or purpose to some structure because the purpose seems obvious. For one seed that reaches its destination a great many may be eaten or destroyed in other ways Robins are very fond of the pulp of haws

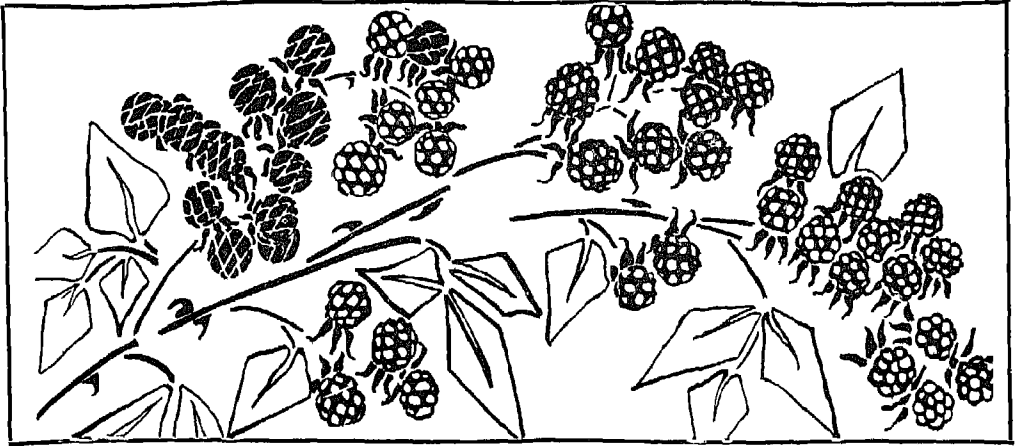
III. Let the children examine the hips Include if possible some that have been pecked open Here again are fruits that would attract birds Notice the remains of calyx and stamens, and the position the petals would occupy Now draw attention to the stiff bristles which protrude through the small opening at the top. From their position, it may be suggested that these form the stigmas. Pass round the halved fruits for the children to follow the course of these bristles down. It will be seen that each one is attached to the top of a "seed" Explain that each one of these seeds is really a nutlet, with its own stigma and style. Compare with Wood Avens (Geum or Herb Bennet) in which several nutlets form one fruit and the style of each forms a hook In Wild Clematis the style forms a plume. If these have not already been seen in the hedge, they should be shown for comparison, and all three drawn

In the Wild Rose, however, the nutlets are enclosed, so that they seem to be seeds. The top of the flower stalk to which all parts of the flower are attached, the *receptacle*, has become hollow like a deep cup, and grown right round the ovary. The same thing has happened in the Hawthorn fruit, only here the receptacle is not hollow, but has joined on to the fruit. Illustrate by a blackboard diagram.

IV. If the children have not already made drawings of these two fruits they should draw them first; then let them draw

a vertical section of the hip to show the shape of the receptacle, the nutlets and styles

V. Further work.—Observations should then be made out of doors to see how many of the fruits are really eaten by birds, and when they disappear. Count the number of hips found pecked open and hollow Record on a chart, giving place and date of anything noticed

II. BRAMBLE OR BLACKBERRY

THE LESSON

Aim.—The study of a successful hedge plant, and especially of its fruit

Material.—A long branch. Sprays of fruits for the children, showing different stages in development. It is usually possible to find a few flowers, if not, a picture of the flowers, which the children will have seen earlier in the summer, may be obtained

Introduction.—In the first year the children examined the growth of the bramble It is only necessary, therefore, to recall the characteristics which make it successful in obtaining its place in the hedge, in order to lead up to its final stage, the provision for colonising new areas

Ask the question, "What is there about the growth or structure of the bramble that helps it to succeed in obtaining such a good position in the hedge—'a place in the sun'?" Refer to its scrambling habit, its hooked prickles alike on stems, leaf stalks and the under side of the veins, the vigorous growth it makes each year (perhaps some children have measured the longest branches they could find); the habit of throwing out some branches sideways, which root when they touch the ground, and so extend the width of the plant Blackboard headings might be written,—(1) success due to structure, (2) success due to habit of growth,—and the various points might be filled in as they are mentioned.

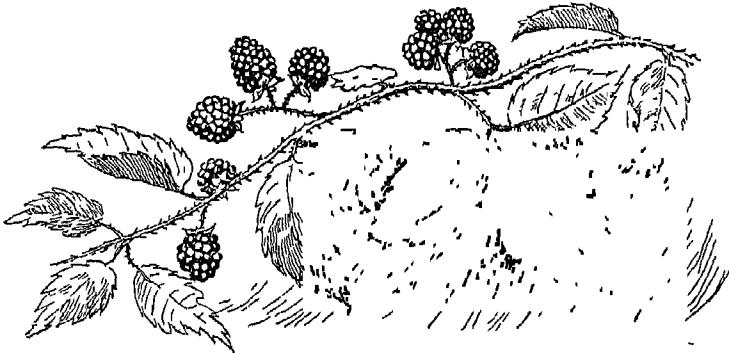
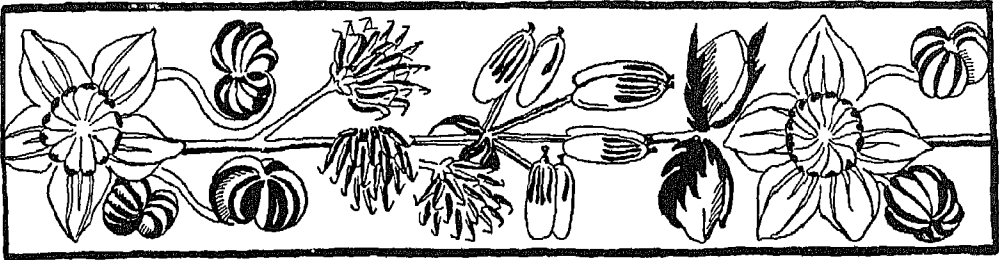
I. This would bring us to the study that is new, the fruit The flowers are mostly found at the surface, where insects can see

and visit them, though often some of the largest and most luscious fruits are tucked away under leaves, or even formed low down in the hedge, amongst the grasses Those in sheltered, sunny places ripen first. Though brambles grow in very dry situations, the best fruits are found where the roots can draw upon a good water supply. Those in dry places are apt to be hard and seedy.

Let the children notice that the fruits grow on short special branches bearing a cluster, each fruit with its own stalk. Trace the stages by which they are formed. First the petals drop off, the stamens shrivel, the ovary begins to grow larger. The ovary is green at first. It can be seen to consist of several distinct or free chambers called *carpels.* As they grow larger they change to red, but are still quite hard. Gradually they turn black, soft and juicy. Let the children cut the fruits through the centre lengthwise with penknives. In the centre is a conelike receptacle, to which all the separate carpels are attached. The upraised shape of the receptacle allows sufficient room to accommodate them Examine separate carpels. Each consists of a thin outer skin, a juicy pulp, and a hard seed which is really a little stone with a seed inside. So each carpel is really a tiny drupe or *drupelet*, and the fruit as a whole is known as a compound drupe

The fruits are eaten, the seeds pass through the food canal without the stone being digested, and in this way stone and seed are deposited in some new place where they can grow. Human beings eat the whole fruit, but possibly birds, pecking at separate drupelets, may drop the seeds from their beaks without swallowing them.

II. Let the children draw the spray of fruit, the section, and a single drupelet diagrammatically to show the stone inside Label the drawings to explain the purpose each part serves

III. Further work.—As in all this series, any observations to note whether the device really works are valuable Look for "berries" which have been pecked Look for seedlings It is not always possible to be sure, however, without digging them up, whether young growths are from underground stems or from seeds Many fruits, especially those hidden near the ground, are never found by birds As they are so juicy they often "go mouldy" very quickly, that is, they supply food for plants called moulds without serving any purpose to the plant. Many flies lay their eggs in such hidden fruits, and the grubs (like small white caterpillars), which will be familiar, feed on the juices without helping to scatter the seed Probably only a small proportion of fruits serve the ends of the plant

III. NON-SPLITTING DRY FRUITS

IT will perhaps hardly be necessary to give a formal class lesson on these fruits Their characteristics can best be studied individually, from time to time as they can be obtained The teacher should draw attention, when suitable moments occur, to any points she wishes the children to grasp, especially if the children do not seem to notice or understand them. Each child might have a copy of a set of questions and instructions to guide him

This group of fruits, technically called "indehiscent," does not depend as a whole on either wind or animals for dispersal, though there are instances in which both play their part. The fruits may drop quite close to the parent plant and germinate there, taking their chance of survival if over-crowding occurs, or they may roll some distance, or perhaps (as in the case of some nuts) be blown along the ground. The hard pericarp, or carpellary (ovary) wall, which serves to protect the seeds until they are embedded in some crevice or hidden amongst fallen leaves, gradually softens as it absorbs water from its bed, and the root eventually emerges through the decayed substance.

The following notes will help the teacher to distinguish important points, and guide her in examining other examples

Hazel Nuts.—The hazel bears two kinds of flowers on the same bush (to be examined in the following spring), the catkins which carry pollen, and the ovary-bearing flowers marked by little bright red tufts of stigmas, which project from buds close to the stem As a result of wind pollination, the ovaries develop into nuts, usually borne in clusters of two or three. They are hard, at first pale green, almost white, then by October the ripe nuts change to a rich light brown Each is enclosed in a cup, composed of three toothed lobes, leaflike in texture Each cup or cupule is developed from three bracts or leaves which grow immediately below the flowers inside the scales of the bud.

A large number of these nuts must be eaten by squirrels, dormice, field mice, nuthatches and other strong-billed birds, and also by boys. But some, when they fall to the ground, roll away and become planted in some suitable place for germination.

Note that animals in this case are enemies, not friends, because they eat the seeds The hard pericarp protects the seed from all who have no means of cracking it.

Hollyhock and Nasturtium.—These fruits are known as *schizocarps* (from a Greek word meaning *to split*), because the carpels split away from one another and fall separately, but without opening, so that germination can take place only when the pericarp is softened by water. In the Garden Nasturtium, the three carpels usually mature, but sometimes only two or one becomes ripe. In the Hollyhock, many

carpels are arranged round a short, columnar, central receptacle Each separate carpel is disclike, and sufficiently light to be helped by the wind.

Wild Parsnip.—(Illustration on Plate I., page 389.) These fruits are also schizocarps. Their flowers are borne in very large numbers on a flat inflorescence known as an *umbel*, in which a large number of branches from the top of the flower stalks bear small flowers all at the same level The fruit of each flower consists of a pair of carpels, very lightly attached by a thread-like rod which splits downwards, so that each carpel is suspended vertically from the top of it Each carpel is a thin plate, bearing the seed in the middle of two wing-like expansions As it falls away it is easily caught and carried by the wind. Many members of this family of the Umbelliferae have a similar device, others have hooked fruits so that they catch on to the coats of animals e g. Hedge Parsley (Torilis) noted in the previous year

Burdock.—This is a "lair" plant, found in rank hedgerows, associated with rubbish heaps and, like docks and nettles, following the haunts of man. It is a strong, pushing, coarse-growing plant, establishing itself very readily where human interference has destroyed natural vegetation without replacing it by definite cultivation Its heads of dull purple, thistlelike flowers are surrounded by rows of stiff scalelike bracts, which become hard and woody after fertilisation has taken place; and the bracts are recurved at the tip to form a hook. These hooked bracts enclose a number of nutlets, interspersed with stiff bristles When the head of fruits is ripe, its attachment to the stalk becomes so slight that the least touch will detach it, so that a person or animal brushing against the plants in passing, will carry away bunches of fruits at a time on his clothes or fur At the same time, the attachment of the nutlets inside is loosened The bracts dry and separate, and the loose nutlets inside drop out and are scattered Since passers-by, dogs, sheep, and cattle, are the chief agents, the nutlets will in all probability again be dropped in similar haunts

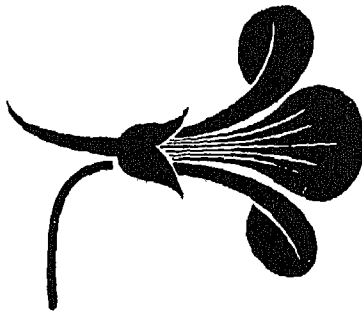
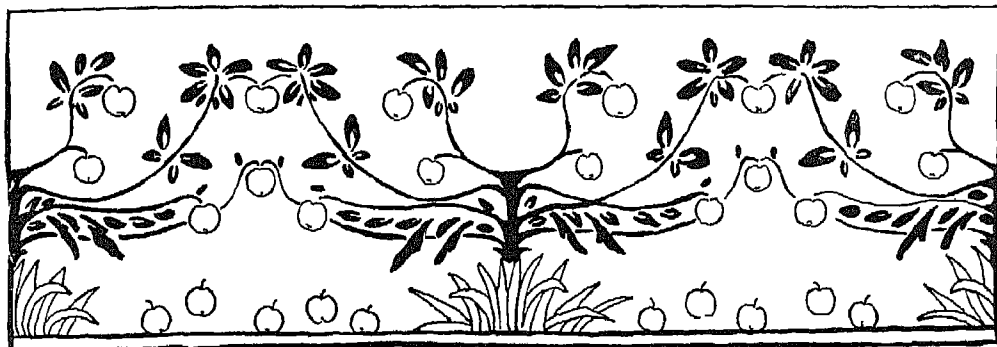
Slip of instructions for the children.—For each fruit.

(1) Find out, if you can, what parts of the flower are present, and where the other parts were attached

(2) Has any other part ripened as well as the ovary ?

(3) What means of dispersal do you think the fruit will have?

(4) How do you think the seed will be able to sprout? Can it come out?

Make drawings to show all you can find out about the fruits, and label them or write notes, whichever you think best, to explain them.

IV. THE APPLE

POINTS FOR THE TEACHER'S CONSIDERATION

THE Apple presents a condition in which a succulent fruit relies, not on the production of sugar and water inside the pericarp, but in an accessory part of the flower—in this case, in the receptacle (see previous plate)

In the plants grouped together as the Rosiflorae a transition is found from a saucerlike, shallow receptacle, as seen in the Plum, to a cone-shaped receptacle on the one hand (Bramble), or a deep cup-shaped one on the other (Rose). These various forms all seem to be attempts to give more space to the various parts of the flower and especially to the fruit In the Rose it was seen that the deep, hollow receptacle completely enclosed a number of free carpels or nutlets In the Apple the process has gone further The five carpels are completely united (*syncarpous*) and the hollow receptacle has fused with the carpellary wall. The same thing has happened in the Hawthorn (in the fruit but not in the flower), the receptacle forming a very thin covering not distinguishable from the outer pericarp

As the fruit of the Apple ripens, the ovary grows, but remains horny, forming the core in which the seeds are embedded. The receptacle becomes succulent, soft, and in cultivated apples sweet and delicately flavoured, though in the wild apples it is sour and has a peculiar drying effect on the palate. The skin of the receptacle becomes brightly and delicately coloured, thereby attracting birds and other creatures

The Strawberry is another member of the Rosiflorae in which the receptacle provides the attractive edible part, only here, as in the Blackberry, it is convex instead of concave. The "seeds" embedded in the surface of this succulent receptacle are in reality nutlets or distinct ripened carpels, each containing a seed.

THE LESSON

Aim.—To realise that other parts of a fruit than the ovary can be edible and therefore attract animals

Material.—If possible get each child to bring an apple, or take the lesson with small groups in turn to minimise the number of fruits needed Some will need to be cut transversely, i e. in a plane at right angles to the stalks, and these can be interchanged for the children to draw them If possible

obtain some wild and cultivated Crab Apples.

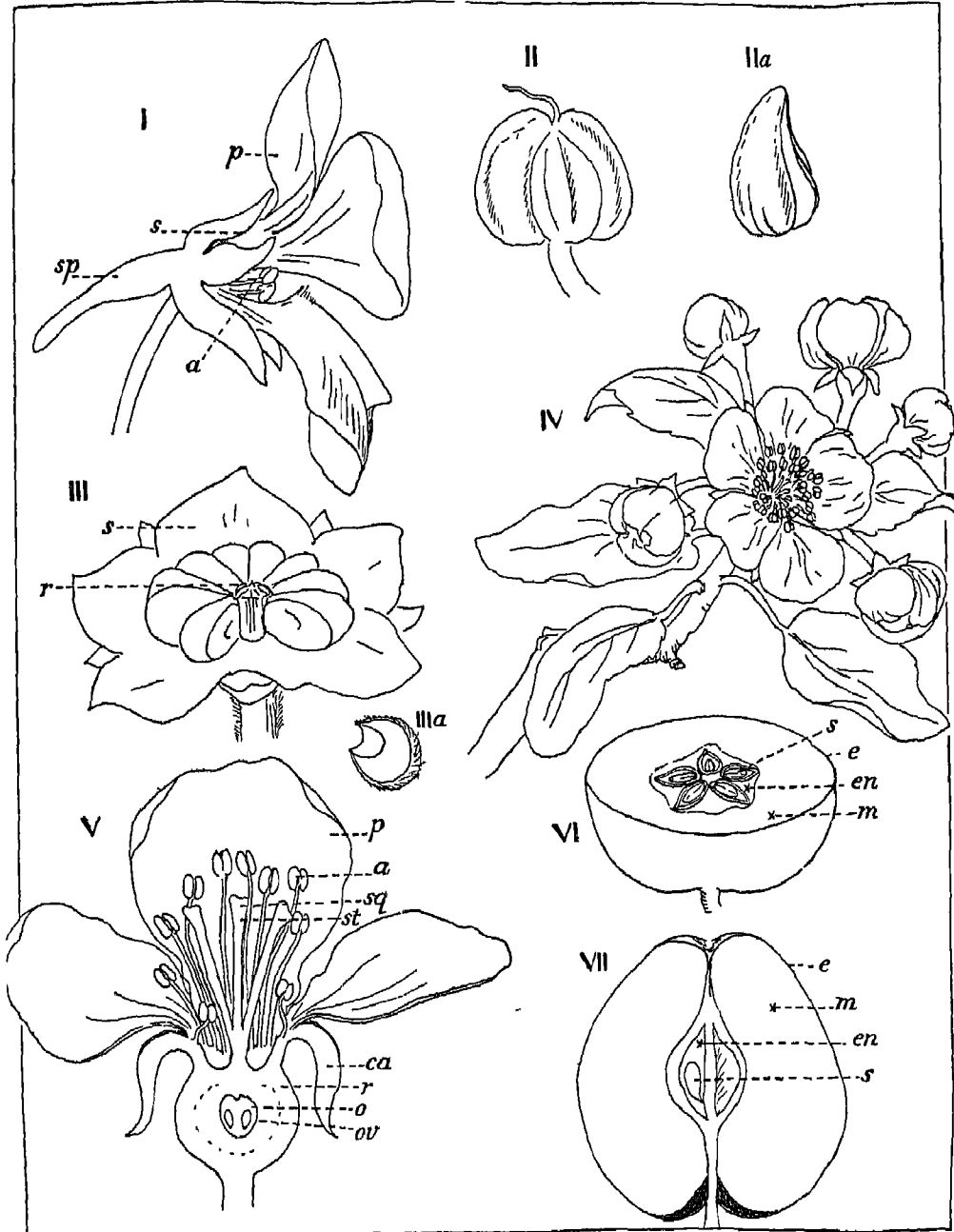
Introduction.—Let the children enumerate all the succulent fruits they can think of, and ask them what part of each becomes succulent. Remind them that in the Wild Rose it was not the wall of the ovary, but the receptacle on which the sepals, petals, and stamens grew, that became brightly coloured and edible; and that the true fruit, composed of free nutlets, was enclosed inside it.

I. Give them the apples to look at and describe. Notice the large amount of succulent pulp that can be developed in cultivated forms, the sweetness and variety of flavour. Explain that these have been attained by selecting the best that occur, and by grafting the branches which bear them on to strong trees, grown from seed. By cutting the branches and binding them together, the two can be caused to join and grow as one Gradually, by careful choice, new and better forms have been cultivated

Notice that the glossy skin, like a bloom, throws off water, and thus it protects the inside. The skin also calls attention to the attractiveness of the contents. Ask if the children have watched the apples growing. When the pale pink petals are scattered, we can see just below them a small, hard, green knob, with the sepals still attached to the top. This is the receptacle Make a blackboard diagram. Inside the receptacle is the ovary, joined to it. Probably out of a cluster of a dozen flowers only two or three will ripen into apples.

II. Now let us see what the ripe fruit is like inside. Cut several across as described, keep one and pass the others round for examination With the help of a blackboard diagram show the parts. On the outside is the skin. Then comes the juicy pulp, formed from the receptacle. Separating the ripe ovary proper, the "true fruit," as it is sometimes called, is the thin green line of the ovary wall, or pericarp. Inside this is the core, or ripe ovary. It consists of five chambers or carpels, with black or dark brown seeds embedded in them, arranged in rings with their points towards the central axis, to which they are attached. They are white in an unripe fruit. The core is horny, and not good to eat.

III. Dispersal.—Discuss what happens to apples. We eat the pulp or receptacle and throw away the core. Having bitten into it we expose the seeds, which can then drop out Do birds or other animals eat apples? Collect any evidence you can Horses are fond of them, some dogs like them, but in both cases they eat the core. Perhaps the seeds may be passed out undigested and so sown. Birds will peck the surface of apples. Do they get down to the seeds? Perhaps they may in Crab Apples, where the pulp is not very thick. In the cultivated apples the pecking of birds may cause the fruit to decay through the entrance of moulds or flies, and so gradually the seeds will be exposed Many flies and wasps will attack fruit when the skin has been perforated by the beaks of birds.

IV. Let the children draw the cross section of the Apple to show the various parts.

SKETCHES FOR THE BLACKBOARD

NASTURTIUM I Flower, side view *s*, sepals, *sp*, spur, *p*, petals, *a*, stamens II. Fruit IIa Fruit separated.
HOLLYHOCK III Fruit *r*, remains of styles, *s*, sepals IIIa Single fruit
APPLE IV Blossom V Vertical section of flower: *r*, receptacle, *o*, ovary, *ov*, ovule, *ca*, sepals, *p*, petals, *a*, stamens, *st*, styles, *sq*, stigmas VI Transverse section of fruit *e*, epicarp, *m*, mesocarp, *en*, endocarp, *s*, seed VII Vertical section of fruit.

V. THE DAFFODIL

AS the study of a bulbous plant has been indicated in detail in the Hyacinth, there is no need to repeat here the procedure. It will be sufficient to give a brief account of the characteristics of the Daffodil, especially where it differs from the Hyacinth. The bulbs are best grown in pots of soil or fibre, and if possible in an open border or in grass in the school garden, where their normal growth can be watched under natural conditions. Cultivated forms differ from the wild daffodils or Lent lilies chiefly in size, and in the variety of form and colour which has been developed in the trumpet or corona The wild ones are fast disappearing owing to the ruthless way in which the bulbs are torn up by people gathering the flowers, for flowers of bulbous plants should be cut or carefully picked, if the bulbs are to be preserved

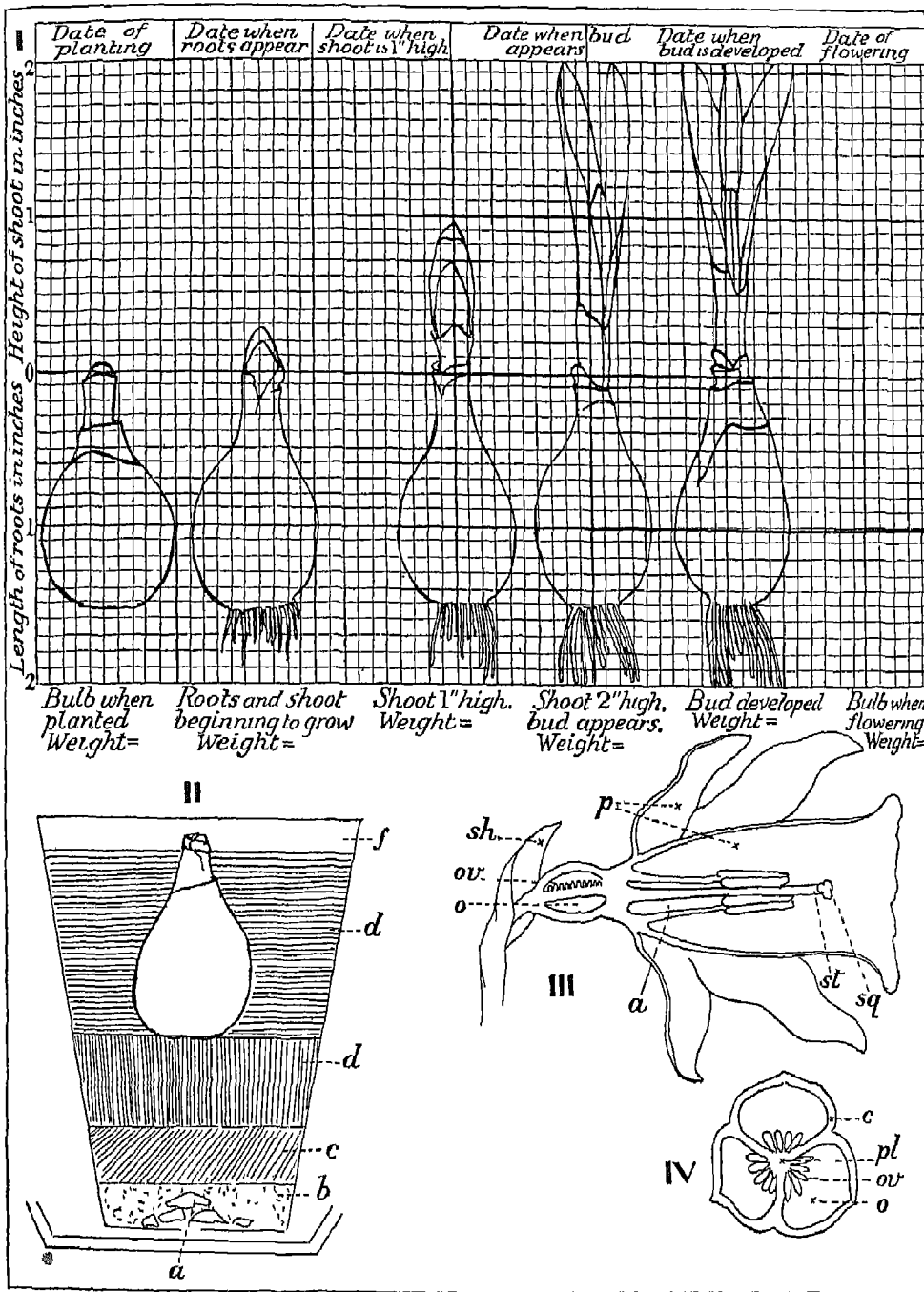
The flower is single, not an inflorescence. It is protected by a circular bract, which remains as a wrinkled paperlike sheath below the flower

It differs from that of the Hyacinth as follows:

(1) The ovary in the Daffodil is below the rest of the flower, not enclosed by the cup of perianth leaves.

(2) The six perianth leaves are united half-way and then bend outwards at right angles to their original direction. At the line at which they become free, the flower tube is continued as the corona, or crown, by an outgrowth from the inner surface of the perianth

In the number, nature and arrangement of the rest of its parts the Daffodil resembles the Hyacinth except in colour In the Snowdrop, which is otherwise similar to the Daffodil, the stamens grow on the top of the ovary, while in the Daffodil they are attached to the perianth just below the level of the corona Daffodils probably depend much more upon bulbs than seeds for propagation

The bulb is light brown, smaller, longer and less globular in shape than a Hyacinth bulb. The outermost scales are papery and easily torn. The chief differences in the growth of the plant are:

DAFFODIL BULB I Recording growth II Planting bulb in a pot *a*, crocks or charcoal, *b*, coarse leaf mould, *c*, fibrous leaf mould, *d*, mixture of turfy loam (⅔) and well decayed leaf mould (⅓), *f*, space allowed for watering III, Vertical section of flower *o*, ovary, *ov*, ovules, *a*, stamens, *st*, style, *sq*, stigmas, *p*, perianth, *sh*, sheath IV Transverse section of ovary *c*, carpels, *o*, ovary, *ov*, ovules, *pl*, placenta

(1) The leaf sheaths come up above the ground, they completely encircle the leaves which pierce the second sheath just to the side of the tip.

(2) The foliage leaves are flat, and pressed against one another's inner surface instead of overlapping The greyish green colour is due to a bloom of wax.

The bulb should be examined after flowering, as described for the Hyacinth, by removing the sheaths one by one. The brown scales are the remains of the bases of foliage leaves formed three years ago. The next series consists of two or three leaf sheaths, which extended half an inch to an inch above ground, surrounding several bases of foliage leaves. These are all fleshy and contain a store of food They developed two years ago. The third series is formed by last year's sheaths and bases of foliage leaves These also are all fleshy.

This year's growth consists of two or three sheathing bases, of which the whole structure can still be seen, with wrinkled papery extensions above ground holding the foliage leaves together. The number of leaves and flowers which they enclose varies Already, by the time the bulb has finished flowering, the leaf bases and base of the flower stalk are beginning to store food.

The remnants of flower stalks can be distinguished from leaf bases by their narrower width, since they do not become tubular. They are not terminal, as in the Hyacinth, but are produced in the axils of leaves, while the apex of the bulb continues its growth as an ordinary leaf bud

The leaf sheaths are tubular in shape, though occasionally an outer one will be found to split down its length as it is stretched by the growth of the bulb. The foliage leaves are flat and strap-shaped to begin with, but at an early stage the edges of the base fold round the next leaf and eventually join together, forming a little curved tongue on the opposite side. The innermost leaf will frequently be found to have its edge just beginning to fold over at the base.

New bulbs are formed from axillary buds, often produced with great regularity in all the leaf axils except the leaf sheaths Thus they face one another, as do the leaves, alternating up the bulb. It is often possible to distinguish leaf bases from leaf sheaths by the absence of axillary buds in the axils of the sheaths

If one of the buds is dissected, it will usually be found to consist of the bases of two or three leaf sheaths, then a series of foliage-leaf bases, all of last year's formation, surrounding the bud proper. Their removal reveals two or three flattened, tubular sheaths, each perforated at one side of the tip by a small opening through which the leaves inside will emerge. Inside the sheaths, which may be about ½ inch long, are several incipient leaves and flowers, only discernible at this stage as minute outgrowths from the growing point.

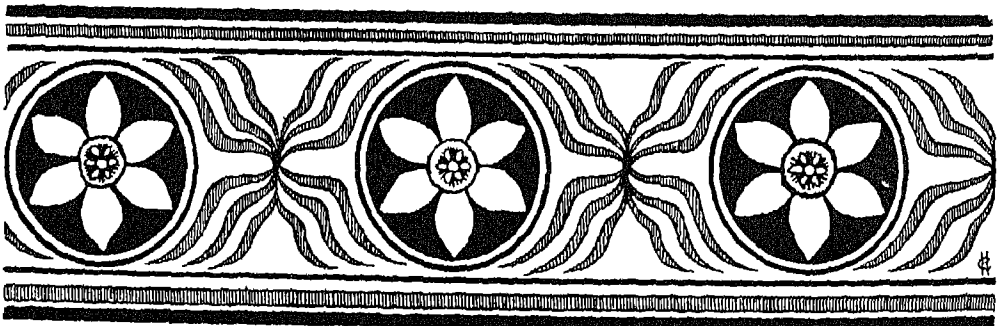
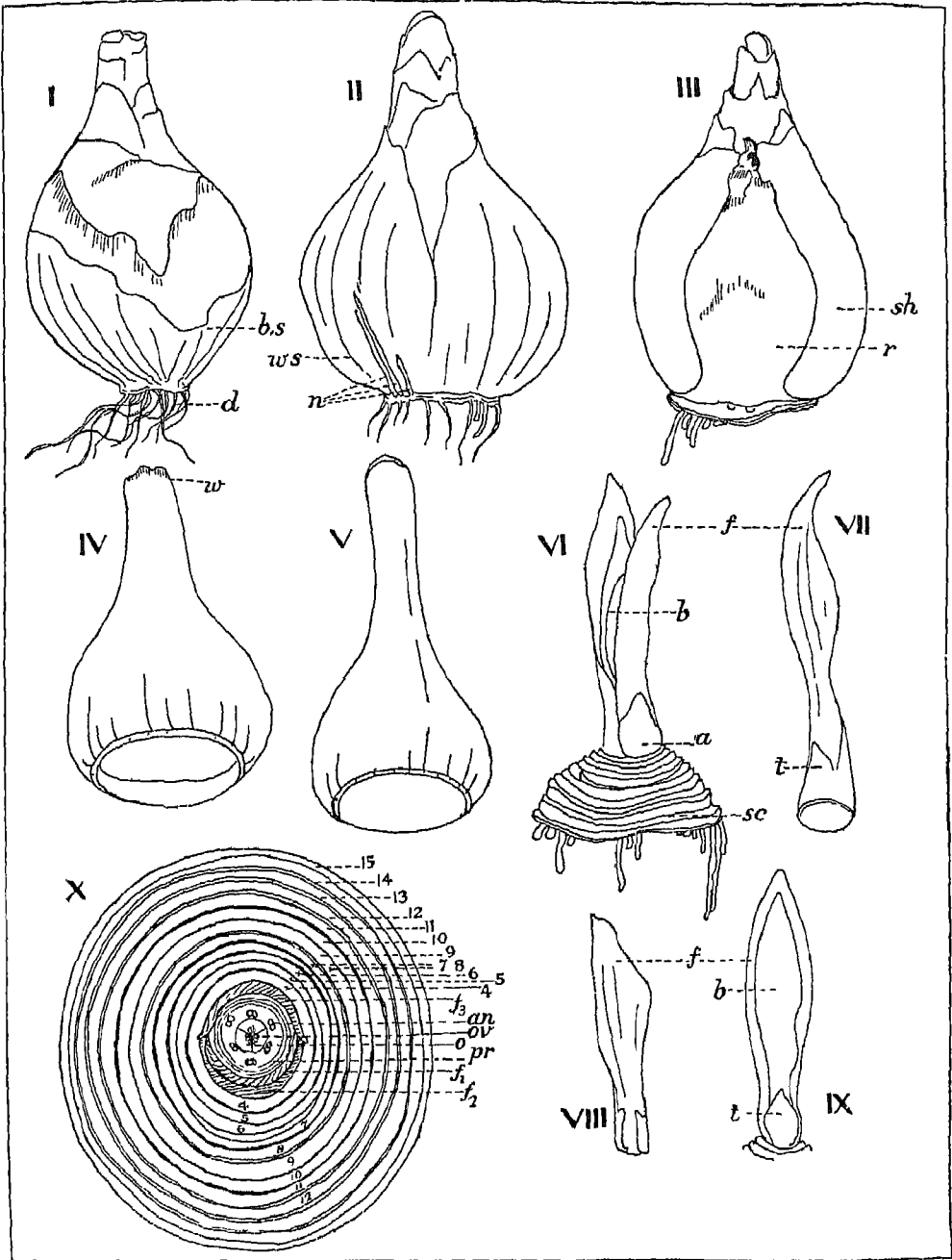
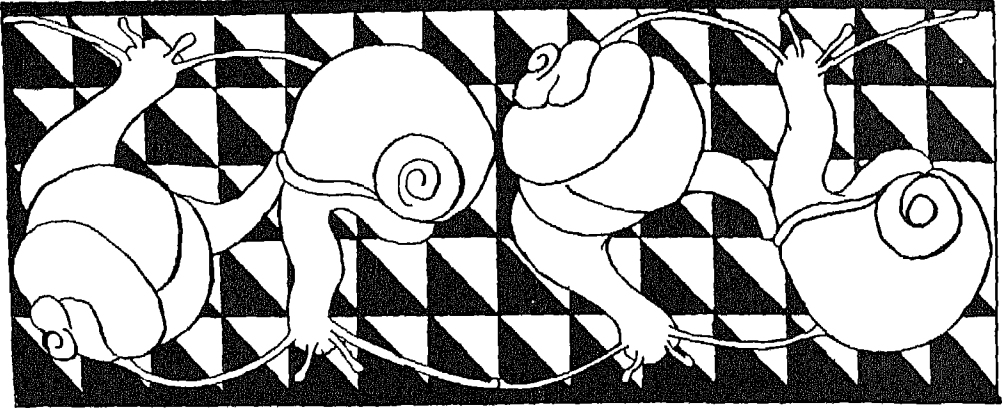



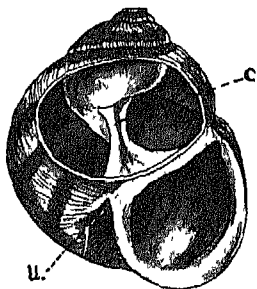
PLATE IV

DAFFODIL. Bulb dissected before growth I Bulb showing brown scales (*b s*) and old roots (*d*) II. Brown scales removed, white scales (*w s*) splitting as bulb grows, *n*, new roots III Three white scales removed, *r*, remains of flower of two years ago, *sh*, sheaths, which surrounded last year's foliage leaves IV Foliage leaf of last year, *w*, withered edge V One of the three sheaths of this year, VI. Scales removed *sc*, scars left by scales, *f*, this year's foliage leaves, *b*, flower bud, *a*, a new axillary bud VII Foliage leaf *t*, tongue VIII First foliage leaf—base not tubular IX *f*, foliage leaf, *b*, flower bud, *t*, terminal bud of bulb X Transverse section of bulb *o*, ovary, *ov*, ovules, *an*, stamens, *pr*, perianth, f_1, f_2, f_3, foliage leaves of this year, 4, 5, 6, sheaths of last year; 7, 8, foliage leaves of last year, 9, 10, 11, sheaths of last year, 12, 13, 14, 15, brown scales

VI. SNAILS AND SLUGS

POINTS FOR THE TEACHER'S CONSIDERATION

IT is often convenient to begin the study of Snails and Slugs in late autumn, when there is perhaps some difficulty in obtaining material for Nature Study, but it is equally good as a spring or summer study, reverting to it in the autumn to add observations on the preparations made for winter. If the study is started in the autumn, it forms a striking introduction to the subject of *hibernation*, or winter sleep If it is desired to make some study of the snails' activities in the autumn, they may need to be artificially stimulated to keep them awake. Usually, if brought into a warm room and handled, and given a "home" which is moist and provided with fresh grass and leaves, they become active. It may be necessary, however, to hold each snail under the tap, or dip it in a basin of water for a few moments They will then usually remain active sufficiently long for a lesson, returning to their passive condition as soon as the interference ceases

Snails belong to the group of *Molluscs*, a name meaning soft-bodied The group is essentially aquatic, and those members that have taken to a land life are only partially adapted to it, and are limited in their activities by their incomplete fitness for it. There are two chief difficulties for animals which emerge from water, (1) the difficulty of breathing atmospheric instead of dissolved oxygen, and (2) the difficulty of preventing the body from drying up They must cope with these two problems In the case of snails the difficulties are overcome partly by means of special habits, and partly by special structures

In the first place, they live only in damp places, coming out in search of food only at night, when the skin which they must expose will not be dried up by the heat of the sun. During the day they withdraw into their shells, and hide in some dark, damp corner, protected from the sun's rays by foliage, stones, old pieces of bark or other substances In prolonged dry weather they can remain for days in hiding, protecting the opening of the shell by one or more thin, micalike plates, exuded as slime which hardens on exposure to air In winter they do the same, thus obtaining

protection from frost and cold winds, but the plates are further strengthened and thickened by impregnation with lime, so that they become quite hard

Shell of Snail, *Helix pomatia*, cut so as to expose the columella (*c*) and the umbilicus (*u*)
(*From Lulham's "Zoology"*)

Structurally, snails are protected from a dry environment by their shells. These, which are found in their marine relations, are characteristic of the group, and probably their presence was a determining factor in allowing the snails to become pioneers on land. The shell has been lost by the slugs; it is represented by a plate lying under the skin over the shell gland which secretes the shell. In some snails an intermediate condition is found, a tiny shell, too small for the snail's use

It may be objected that the Banded Snails so frequently seen in chalky districts are often found resting during the day on the upper surfaces of plants fully exposed to the hot sun This is true, but if the shells are examined it will be found that they seem peculiarly thick compared with those of the various garden snails. Possibly also, the narrower coils expose a smaller surface Probably, in the hottest weather, these snails, too, take shelter. This point could easily be investigated by children.

In addition to finding protection from a dry atmosphere by seeking damp surroundings and by possessing a shell into which it can retire, these conditions facilitate breathing All breathing takes place primarily through the skin, which may either remain thin and delicate all over the body, as in the Earthworm, or be drawn out or pushed in, to make special projections or sacs, through which an interchange of oxygen and carbon dioxide can take place. In the snails, an out-growth of delicate skin (or a membrane), called the mantle, lines the shell and forms a breathing organ or lung This is supplied with small blood vessels which can extract oxygen and give up carbon dioxide Muscular contractions of the floor of this sac (the body wall) help to pump air in and out, while a special valve on the right side of the body opens and closes at intervals to empty and fill it. When the snail retires into its shell, it occupies the space and therefore forces air out. The edge of the mantle, called the collar, joins the body to the rim of the shell, except in the one position where an opening is left for breathing

THE LESSON

(First Period)

Aim.—Study of habitation

Introduction.—If the school has a garden, or there is waste ground in the vicinity in which snails abound, the children can go out and look for them Give them the object of the study and arrange the class in small groups with leaders Give each group a slip of questions to guide their observations This study might occupy about a quarter of an hour.

Questions.—(1) Where do you find the snails? (2) What are they doing? (3) If they are attached to something, can you remove them? What do they do when you take them off? (4) Look at the place on which they rested What do you notice? (5) Are all the snails (*a*) of the same size? (*b*) of the same kind?

If it is not possible to do this outdoor work, collect any information the children can give about these points

I. Suggest that a home shall be made in which to keep a few snails, and ask how it shall be made. How can a snail's natural home be imitated? A shallow enamel bowl or pie dish makes a suitable observation case, with a sheet of glass over the top to prevent the contents from becoming dry and the occupants from wandering. Emphasize the need for keeping it damp, because the snails cannot breathe dry air. The cover can be lifted once or twice a day to admit fresh air, but the snails do not need very much. Let the children place in the bowl some short turf, moss, dead leaves, and one or two stones, or pieces of broken earthenware for shelter. The snails kept in captivity invariably crawl to the top of the bowl and on to the glass, and if there is no cover they will be found high upon walls and even on the ceiling by the next morning.

II. Let the children draw the snails in their resting position. Draw attention to the coiling of the shell, the direction of the coil (looked at from above), the number of coils, and the fine lines of growth. At intervals a thickened ridge may be found This ridge indicates the cessation of growth each autumn It tells us the snail's age, but it is not an unfailing guide, as, in a hot, dry period in the summer, growth may cease temporarily and then go on again. The shell is added to by the edge of the mantle, which secretes the limy substance of which the shell is made The markings will often show better if the shells are washed.

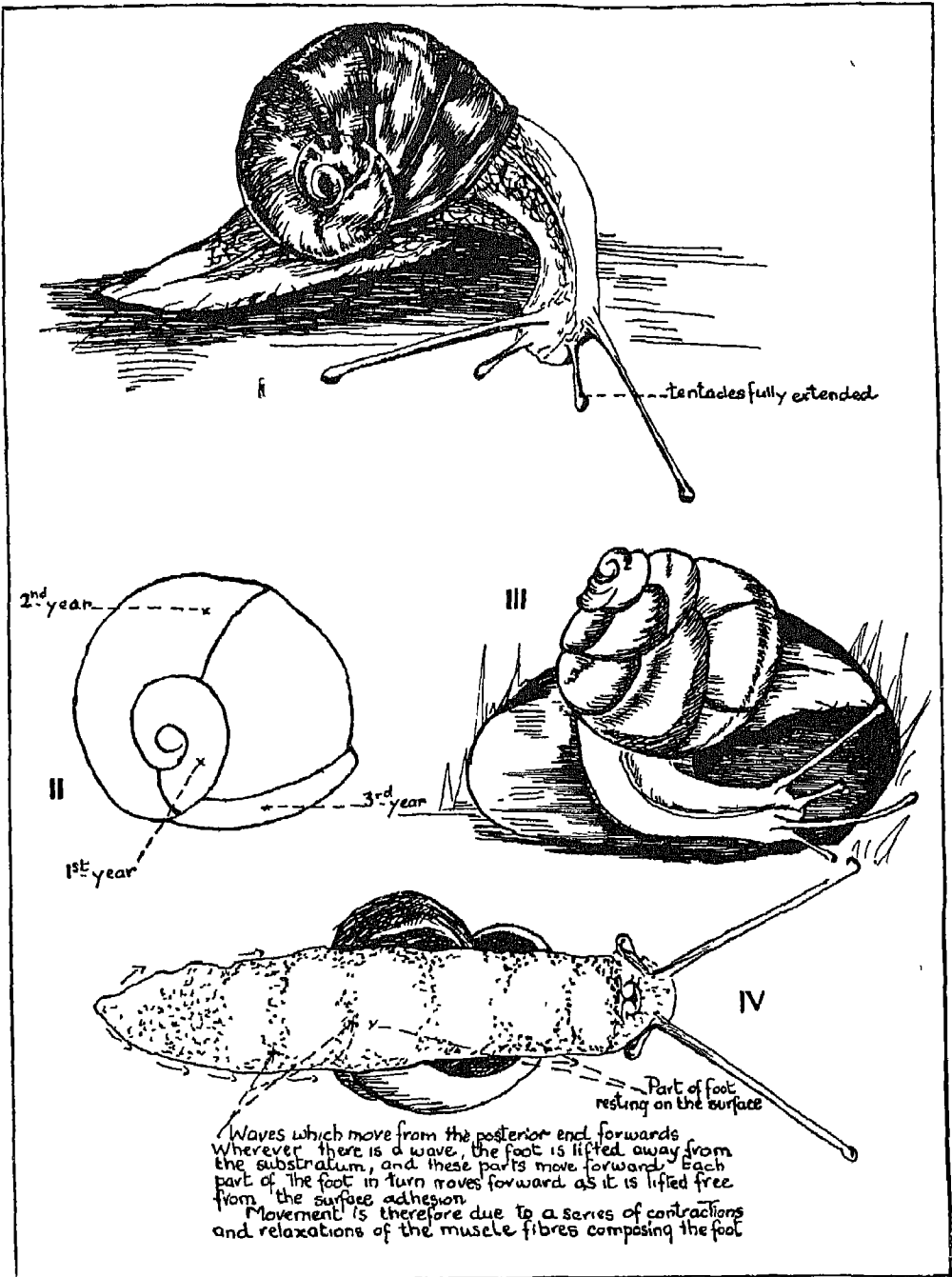
(Second Period)

Aim.—Study of movement and senses

Material.—Two snails to each group of children Apparatus for the teacher to demonstrate to one group at a time the snails' responses to various stimuli a small basin of warm water with wire gauze over it, or a glass plate that can be warmed in water and then lifted out; various strong-smelling substances, such as ammonia and turpentine; a glass rod, a small dark screen with three sides and an electric torch; a whistle, a small bell, a box to rattle, or any childish musical instrument, to make both irregular and rhythmical noises Small dishes for each group of children (sea shells, walnut shells) containing tiny pieces of carrot, apple, onion and lettuce, in addition a small jar of water.

Introduction.—Let the children arrange themselves in the same groups as before, and give them written instructions on the blackboard Discuss these instructions with them until they are clear. Explain to them that the little dishes of food are for the snails to eat if they can find them, and ask how the children could arrange so that they can see how the snails find their food How could they possibly find it? (They might see it) Suppose we prevented them from seeing it, is there any other way in which they might try to find it? Suppose there were apples or oranges in a bowl and you were near them but could not see them, could you find the fruit? Or suppose the dinner was cooking in the next room, could you tell? What we are really going to try to find out, then, is whether snails can see or smell food, and so find it. (It will often be found that children are slow to propose anything in the way of experimental conditions, and may finally need to have the suggestion made that they shall put the snails with their backs to the food, so that they cannot see it to begin with, or they may put something between to hide it, e g. stones.)

Instructions.—
(1) See whether the snails discover the food in the little dishes.
(2) Watch to see whether they eat anything, and how.
(3) Make drawings to show a snail crawling.

PLATE V

I Snail fully expanded showing the way tentacles are used to explore
II Shell, showing three years' growth
III Snail climbing over a stone
IV Underside of foot, showing movement

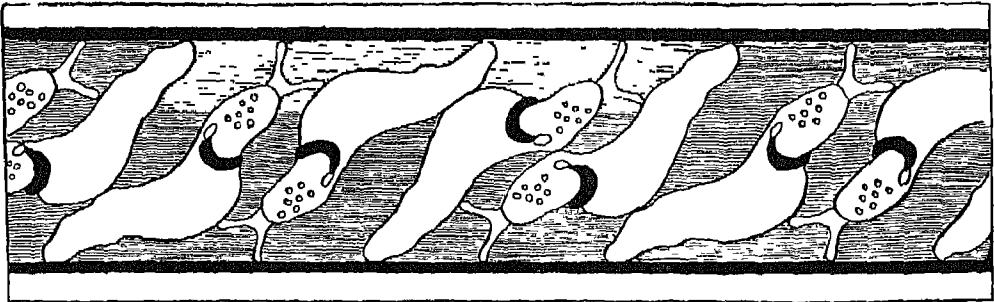
(4) Make drawings to show how it feels its way.
(5) What does it do if you put something in the way?
(6) Can it feel? Which parts seem to feel most?

III. When the groups understand what they are doing, and have started work, the teacher can take one group round a table, to see as much as possible of a snail's behaviour in the presence of various stimuli.

If the snails are inactive dip them in water, then watch their movements as they emerge from the shell. (All the groups may do this.) Put two or three snails on a damp plate or sheet of glass, so that they can move easily Hold a glass rod dipped in ammonia or turpentine in front of each in turn. Be very careful not to touch the snail or drop the substance on it. Note what kind of response is made.

Try the snails on both a warm and a cold plate, to see whether heat has any effect. Place them near the hot pipes. Flash the light upon them. Enclose them with the screen (large enough for the children to see into it from the front), which should cut off light from the window. Each side of the screen should be about 1 foot square. Direct the light steadily upon the screen

Try both irregular and rhythmical noises. Then try tapping on the glass plate on which the snails have been placed In each case note as exactly as possible whether any responses are made to light, to sound, and to vibration (due to the tapping on the glass, which is conveyed to them along it). As individual behaviour differs it is important not to try the same snails every time, and to have several, if any conclusions are to be drawn. In all these experiments care is taken not to give pain.

VII. SNAILS AND SLUGS

(Third Period)

Aim.—To see something of the structure as far as it is related to activities observed

Material.—Let the groups of children have the snails in boxes or vessels, covered over, but so that they can be taken out for reference if required. The drawings made should also be available. The teacher will also require glass plates, and a leather sucker on a string.

I. Introduction.—Tell the children what it is proposed to do Let them describe the snail's movements, (1) in coming out

of the shell, (2) in feeling its way, (3) in crawling.

(1) In coming out of the shell, first of all part of the underside can be seen, then the whole of it. This is called the *foot*, because the snail glides along by using it. Then the head appears, and the neck, and at the same time, often one by one, four little horns or feelers stretch out, a little at a time

(2) Ask what the children notice about the use of these horns The long ones, which are uppermost, are moved about in the air and come into contact with any obstacle, and sometimes with the ground They seem to help the snail to feel its way. Sometimes it rears up the whole front of the body as well. The short horns touch the ground gently immediately in front of the snail, and seem to help it to feel, also Perhaps they detect rough ground. They emerge by turning inside out, and are drawn in again by the tip first

(3) In crawling the snail glides on its foot, and leaves a trail of slime behind. Where does this come from? Take the snails out, induce them to come out of their shells and crawl on the glass plates. Take a pencil and touch the groove on the underside of a snail just where the head joins the foot As the pencil is drawn away it is seen to bring a thread of slime

Let a snail crawl on the glass, and hold it up to look underneath. As it moves along a rippling movement can be seen passing forwards along it, as if there were white bands constantly slipping forwards Explain that these are the muscles of the foot that contract to pull the snail along. Place your hand on the table and draw it up to the finger tips by contracting it. Notice that your hand moves forward only if your fingers are fixed by pressing on the table The snail has to press the edge of its body against the glass in order to draw the foot along.

Hold the snail upside down on the plate It does not fall off Show how this can be by pressing a damped leather sucker on the under side of a plate, and explain that this happens when there is no air between the table and the sucker. The slime moistens the foot of the snail and so helps it to act like the leather sucker. (N B. This process is not *understood*, it is only *shown*.) Let the children place something in the path and watch the snail surmount it, clinging to it with the soft edges of its foot

(4) Draw attention to the large coil forming the outermost part of the shell, and tell the children it is used for breathing, and takes in air Let them watch till a snail opens the round hole on the right side just at the rim of the shell They may not see it at once, but they should bear the point in mind and look for the opening

(5) If in the previous lesson the children were not successful in getting the snails to feed, they should try in spare moments until they *have* seen them feeding They should also put fresh leaves of lettuce or cabbage, and small pieces of apple, potato, carrot, or onion into the home, and look for the tooth marks, which are quite distinct, the harder substances looking as if a tiny rasp or grater had passed over them Look for the mouth just underneath the head When not in use, it is only a small dark-brown mark, but when the snail feeds it can be seen to open wide, and a minute scoop appears, which quickly scrapes the surface and disappears again. Explain that this rasp (not really a tongue) is covered with rows of very small teeth, nearly 15,000 of them, so that it is no wonder that the snail can destroy a great many plants in the garden

II. Further work.—(*a*) When the cold weather begins let the children hunt for snails again, and notice the following points

(1) Their tendency to congregate in large numbers, one on the top of another, and to fill spaces under stones, old

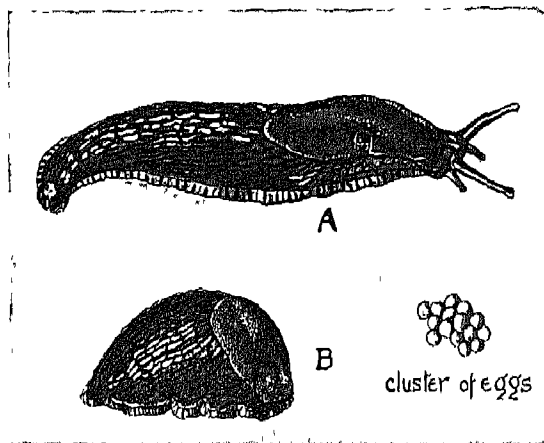
drain pipes and plant pots, or just under loose soil or decaying vegetation.

(2) That if they are detached, it will be seen that one or more plates have been formed across the shell opening These are yellowish, with a white, porous spot which is supposed to suffice for admitting air. The snails will remain in one place all through the winter, not feeding, breathing very little, and never moving, until the warm, damp spring days bring new vegetation for them to feed on, and warmth enough for them to become wakeful.

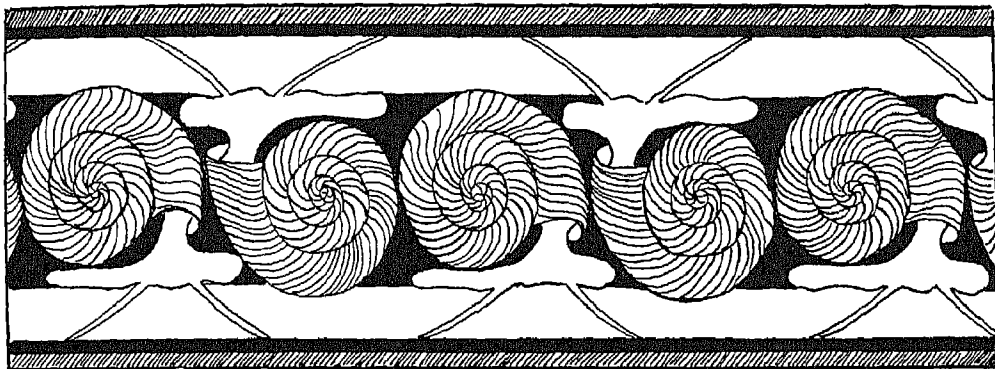
(*b*) In the spring, look for the eggs, just beneath the surface of damp soil—a cluster of pearl-like, transparent globes about ⅛ in. in diameter. Take them indoors and keep them in a saucer of damp soil, covered with a few damp decaying leaves, which can be lifted to watch them Cover the whole with a glass plate and label with the date. The development can then easily be watched. A little speck will be seen in each egg. Then the speck will grow larger, and with a lens can be seen to revolve inside the transparent capsule. In a few days, minute, colourless, transparent snails will emerge. Keep a few blades of grass and bits of fresh leaf in the saucer for them to feed on

(*c*) Slugs can be looked for, watched, and compared with snails, from which they differ chiefly in having no shell. A great variety of slugs may be found.

(*d*) Outdoor observations on the movements of both snails and slugs from place to place are interesting, as they can be tracked by their slimy trails. Their range, the distance they travel, the plants they eat, and their curious habit of returning home in the morning to the same spot after a night out are all easy to see A slug's eggs are opaque, but otherwise like those of a snail. They vary in size in different species.

(*e*) Further experiments may be tried, e.g., their pace timed, two snails "raced"; weights attached by thread to see how much they can pull

BLACK SLUG, *Arion ater*

A, Slug extended, showing the open respiratory aperture in the mantle.
B, Slug contracted
(*From Lulham's "Zoology"*)

VIII. POND SNAILS

POINTS FOR THE TEACHER'S CONSIDERATION

THE lesson on Pond Snails would be taken in the series on fresh water animals, but they are described here because of their close relationship to Snails and Slugs of the garden (For illustration, see plate on Water Beetle, page 383)

The clue to their life is that they have, like the garden snails, developed the power to live on land—especially they have developed apparatus for breathing atmospheric oxygen—and they have afterwards returned to a water life They are frequently to be found exposed for long periods on weeds above the level of the water, and they can exist for some time on land, but like their relations they must have a damp atmosphere

They cannot remain under water without coming to the surface to breathe, since there has been no re-adaptation to breathing under water The time they remain under the surface seems to depend on their activity, and therefore on the amount of energy used They may, when passive, remain as long as fifty minutes under water, but when feeding they come up to breathe frequently, for instance, once every two minutes, or once in every ten minutes

THE LESSON

Aim.—To study the habits of the pond snail, comparing it with the garden snail

Material.—Glass jam jars, one between two children, or better still, one each, if they can bring their own A snail, and a little water weed, e g. Starwort or Canadian Pondweed. The Common Pond Snail (*Limnoea stagnalis*) is the best This has a pointed shell about 1½ to 2 in. long If possible there should also be some in a large tank, bath or tub, as their wanderings can then be better watched

Introduction.—Tell the children that the Pond Snail is a relation of the Garden Snail; that the Pond Snail has gone back to live in water again, but it still has to come up above the water to breathe.

I. Let the children watch the snails and notice everything they do, trying to sketch them to show the various positions adopted. The lesson should be mainly informal, the teacher going round to discuss what is seen, and letting the children, in

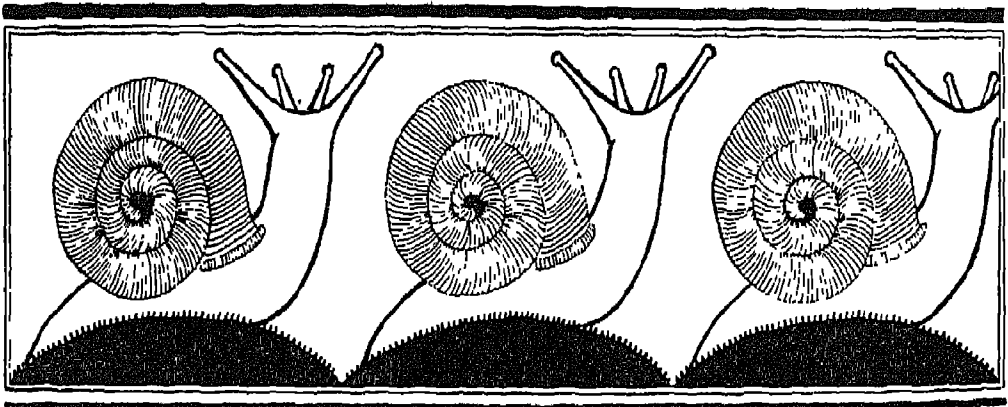
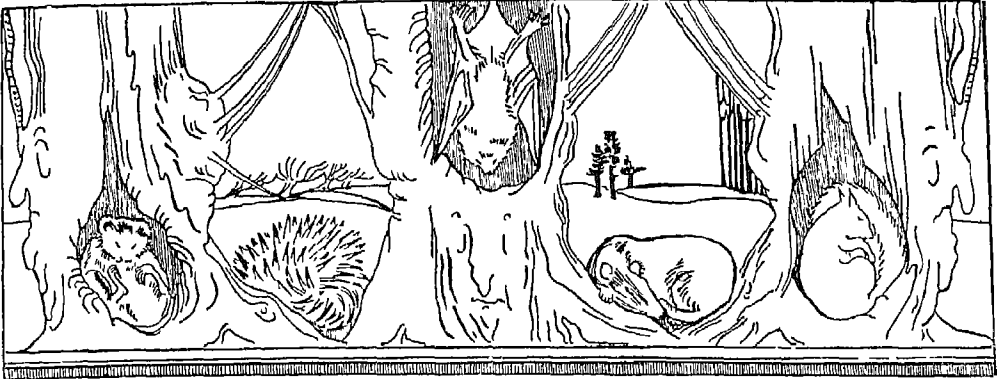
small groups, watch anything of interest in the behaviour of any snail. She would also suggest, by questions, what labelling should be attached to the sketches made, e g "Pond Snail crawling on the side of the jar"; or, "Crawling on the underside of the surface of the water"; or, "Opening its breathing hole above water."

II. The various things noticed would then be collected They would probably include the following points

(1) The snails glide up weeds or up the sides of the jar, and slip from these on to the underside of the water surface so smoothly and gently that they do not cause a ripple

(2) After a time they might be seen to swing over (so that the *left* side would be uppermost) and project a very short spout, just breaking the surface film. At first this looks like a pin prick, but in a moment it widens into an opening like the breathing hole of the Garden Snail The short rim prevents the water from filling it This seems to close suddenly One can sometimes hear a little "pop," especially in a pond where there are many snails

(3) Probably the snail will then withdraw into its shell, and as the body then nearly fills the air chamber, it is suddenly heavier, and falls to the bottom Sometimes snails are said to form a rope of slime and climb up and down it, attaching it to the surface and to some plant at the bottom

III. Further work.—The eggs are very common objects, often brought in with weeds, or laid in an aquarium where snails are kept. The early stages of development and hatching of young snails, as well as their later growth, are easily watched The eggs are much smaller than those of a garden snail, about $\frac{1}{16}$ in across, and are laid in rows, many together, in a long, narrow sac of gelatinous substance, by which they are glued on to stones, leaves or stalks of water plants. This anchorage is useful in preventing them from being washed away, and the "jelly" is so slippery that it is difficult for fish or other creatures to eat it The "jelly" also spaces the eggs so that each has room to grow, and has enough light, water, and air.

IX. HIBERNATION

POINTS FOR THE TEACHER'S CONSIDERATION

THE subject of "Winter Sleep" is often included in a Nature Study syllabus, and is apt to be treated purely academically, because it is difficult to observe it at first hand in animals high in the scale of development, whose life in winter rarely comes within the experience of either teacher or children It is frequently regarded as a phenomenon peculiar to the lives of animals, whereas the cessation of physiological activity is almost universal amongst plants in our climate The term "hibernation" is strictly applied only to animals in which actual physiological changes occur during the dormant period, including a lowering of the temperature of the body, and thus really includes the lower animals only, and not the mammals. However, it is popularly used to cover all cases of winter sleep among animals, and indeed it is difficult to draw an absolute line, since it has been found that the winter sleep of bats, which *are* mammals, *is* accompanied by lowered temperature.

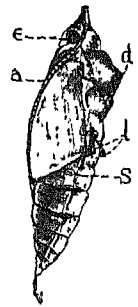
Children will realise the fact that in plants all activity ceases after they have provided for their offspring and for their own continued growth next year This would lead to the question, "Do animals ever meet the winter in the same way as plants, by ceasing to live an active life, or by 'going to sleep'?" This might lead to a survey of garden and hedge, the children's own gardens, and any other areas that have been under consideration, with a view to discover what *does* become of their animal inhabitants in the winter. A special wall chart might be kept to record any instances of their being found, and in what condition, for instance, ladybirds, small Tortoiseshell butterflies, and gnats may be seen in the sunshine on a warm February day.

Some animals are able to remain active through the winter, either because they are able to keep up the body heat to the same level at all times, like the birds, and so only suffer from cold in very severe weather, or because, like the earthworms, they live in some protected situation where frost and wind do not affect them. Many of the birds, as we know, migrate to warmer climates

Having, perhaps, dug up certain cater-pillars, or a cockchafer pupa, or the dark

red leathery pupa of the Buff Tip moth lying in a passive condition in the soil, or cocoons lying amongst fallen leaves, the children establish the fact that other animals besides squirrels and polar bears spend the winter in a dormant condition. This would lead to an intensive and extensive search for such cases. If possible, the teacher, after a preliminary exploration to be sure that patient search *would* be rewarded, might take groups of children in turn to hunt in a variety of different places, and the class could make a list of all the animals found, and the number of each. The searchers might visit heaps of dead leaves, fallen branches and stumps of trees, examining holes and lifting loose bark. They might overturn stones and look in crevices of walls and doors of sheds, under window ledges, amongst tall grass and decaying vegetation, especially inside dry hollow stalks, under the overhanging trails of rock plants, and in box hedges and ivy This preliminary work might be followed by a class lesson in which all evidence would be collected and classified, and the teacher would round off the subject by a talk on the hibernating habits of other animals outside the children's experience. A list is given below of some of the creatures which might be found during the children's explorations.

Snails and slugs of various kinds.
Caterpillars of Tiger moth.
Chrysalises or cocoons of Buff Tip moth
Tortoiseshell, Peacock and Brimstone butterflies.
Ladybird beetles (adult).
Cockchafer larva and pupa in soil (a white fat grub with nearly black head and weak legs)
Occasional spiders, bees, wasps, blue-bottle and house flies
Woodlice, centipedes and millipedes under stones, overhanging or decaying vegetation and bark of decaying trees These creatures seem to be partially inactive, but they rouse up when exposed to the air
Newts and frogs under dead leaves, in ditches or hollows in the roots of trees

COCKCHAFER AND LARVA
Slightly magnified (*after Hero*)

CHRYSALIS OF CABBAGE BUTTERFLY
Pieris brassicae.
e, compound eye,
a, antenna
d, dorsal spine
l, lateral spines
s, spiracle
(*From Lulham's "Zoology"*)

THE LESSON

Aim.—To collect all the children's experience of hibernating animals, and to enlarge it by giving further information

Material.—Some examples of hibernating creatures found in the garden arranged with a little suitable material to illustrate their natural surroundings, e.g. stones, dead leaves and small pieces of bark. (These could be on the Nature Table, and labelled a day or two beforehand) The children's lists and any class chart or other class record that has been kept.

Introduction.—Refer to the fact that the children have been searching for animals hiding under stones, leaves and so on, spending the winter in a passive state, or "asleep." Tell them that this is called "hibernation" from the Latin word *hibernus* —winter.

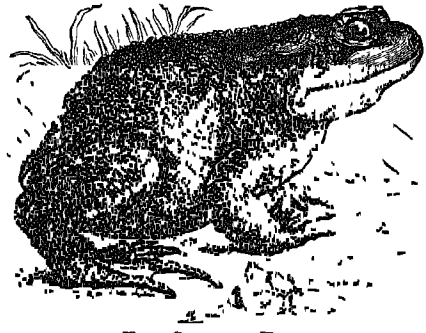
I. Take their lists of animals found and write them in two columns on the blackboard, under the headings *"Occasional"* and *"Frequent"*, grouping the names according

to the kind of locality. Take any evidence the children can give, from repeated visits, showing whether the dormant state is continuous, or interrupted by active periods Have the creatures been seen out in the sun, or anywhere else (e g ladybirds)? There is a popular belief that if the winter sleep is broken the animal dies Possibly it is true of the lower creatures, but observers believe that it is not true of bats and squirrels and other higher animals

II. Discuss the effect of winter on animal life. It affects animals chiefly through cold and diminished food supply, but in the case of damp-loving creatures like snails, one of the dangers is exposure to drying winds

Some animals provide against the diminished food supply by storing food in their bodies, especially in the form of fat, e g. snails and frogs Then, when they go to sleep, their stored food can be used to keep them warm and to keep them alive, since they are not roving about and so using it up in the form of energy. Other animals make store houses, to which they go from time to time when they wake up on a sunny day for a short time, e g dormice and squirrels Colonies of ants will burrow deep underground, and, taking their stores of food with them, live an active life through the winter A colony of yellow meadow ants was found in a London garden eighteen inches deep in the soil, about the roots of a rhododendron bush With their instinctive foresight they had taken with them, or else found a colony of aphides, which were feeding on the roots, and giving their "milk" of honeydew when the ants stroked them.

THE SQUIRREL

The animals that are called "cold-blooded" are unable to regulate the heat of their blood, which goes up and down with the weather conditions If the day is cold, their blood is cold, but in warm weather their blood is warmer, too. Thus in cold weather they are really too cold to be active, unless, like the earthworms and some beetles, they can burrow down into the soil where it is warmer That is why so many of them hibernate, they cannot keep awake The "warm-blooded" animals, however, are not much warmer blooded, but they have the power of regulating the heat so that it can be kept always at one level, whatever the weather. That is why so few of the higher animals need to hibernate Probably those that do, are influenced more by lack of food than by cold Most animals, like squirrels and rabbits and dormice, are said to be very thin by the end of the winter, and frogs use up nearly all their store of fat

THE COMMON TOAD
(From Mivart)

Amongst the cold-blooded animals are the snails and slugs, insects, frogs and newts, snakes and lizards, and, amongst "pets," the tortoise

Amongst the warm-blooded animals which hibernate, all of which are mammals, are the field and wood mice, dormice, squirrels, voles, hedgehogs, rabbits for a time during severe weather, and bats Most of them find a hole in a secluded place, squirrels in trees or amongst the roots, field mice in holes in the ground (see Hans Andersen's "Thumbelina"), dormice, hedgehogs and voles in holes in banks or

FIELD MICE

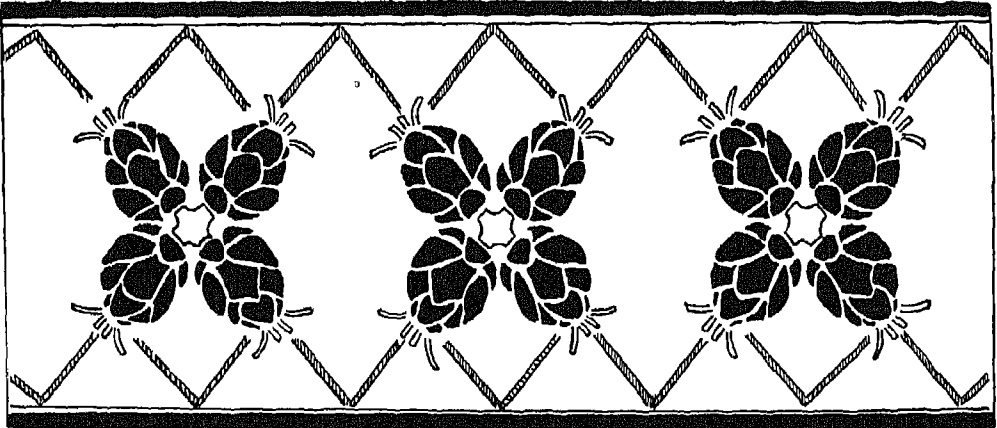
amongst the roots filled with drifted leaves. The little store of nuts, berries and seeds which many of these small creatures make is usually in another hole a short distance away.

The bats hang themselves head-downwards, with their wings folded, and they hook themselves on to some rafter or projecting piece of rock in old barns, churches, towers and caves They are enabled to hang by a curious long curved claw on each thumb

Amongst foreign mammals, the Polar Bear is perhaps most frequently mentioned for its curious habit of burrowing in a hole in the snow, keeping the cavity and the snow above it from freezing hard by the warmth of its body and breath

In many cases it is difficult to see how the animals manage to breathe, but probably life is at so low an ebb, and the energy used up is so slight, that a very small supply of air is sufficient.

III. Let the children write a free account of "Winter Sleep of Animals," using both their own experience and what has been told them (In connection with this lesson the teacher might like to read extracts from *Tarka the Otter*, by H. Williamson, which tells about the hiding places of animals, and also gives a most impressive account of the hardships experienced by wild animals, both mammals and birds, in a severe winter *The Wind in the Willows*, by Kenneth Grahame, though not scientific and not intended to be so, would be a charming story to read in conjunction with this study.)

X. HAZEL FLOWERS

POINTS FOR THE TEACHER'S CONSIDERATION

HAZEL flowers can be encouraged to appear in January by keeping them in a warm and sunny window, and giving slightly warm water, thus they make a useful study to tide over the "dead" period when material is difficult to obtain. The Hazel is a good example of trees or bushes which find it an advantage to flower early,

before their flowers are obscured by surrounding foliage,—their own and that of higher trees The disadvantage of this is that there are very few insects abroad to effect the transference of pollen, and so, apparently, these plants have reverted to wind pollination. They have lost the perianth which might have attracted insects, and have diverted the energy thus saved to the production of greater quantities of pollen.

It will be noticed that wind-pollinated flowers are usually well exposed, either because they flower before the leaves open, or because they are held well away from the plant, as in the sycamore, or are borne on long stalks above the level of surrounding plants, as in most grasses and the few other meadow plants such as Salad Burnet, which have resorted to wind pollination In most cases there are traces of structures which show that at one time the flowers were accustomed to pollination by insects, though we cannot tell whether they were ever very conspicuous or brightly coloured,—probably not In the case of the Birch catkins, which are closely related to the Hazel, a minute four-lobed perianth still persists, and shows the condition from which the Hazel flowers have been derived.

In the Hazel there are two distinct kinds of flowers borne on separate branches of the same tree, often quite close together The most conspicuous are the pollen-bearing inflorescences, the well-known lambs' tails or catkins These consist of a large number of flowers arranged spirally on a drooping stalk. Each little horizontal hood or bract supports two flowers, protected by subsidiary bracts or bracteoles (which, however, are too small for children to distinguish). Under each bract are eight anthers containing a large quantity of very fine dry pollen The anthers are borne on long, delicate, thread-like stalks or filaments. Each stamen consists of a branched filament and two anthers, and a flower consists of two stamens. The branching of the filament is a device to secure a larger amount of pollen, since a great deal is blown away without reaching the stigmas of other flowers These are the male flowers, consisting of nothing but stamens and the protecting bracts.

The female or pistillate flowers are enclosed in oval buds borne on reduced branches, often very short. Each bud has several flowers Each flower consists of a pistil, and two flowers are borne by one bract and two small bracteoles as in the staminate flowers. The collection of flowers and bracts forms a short spiral inflorescence, protected by scale leaves, from which the bright crimson stigmas project Each ovary (or flower) has two stigmas. The flower buds contain foliage leaves also, which unfold after the stigmas have withered There are also smaller, more pointed buds, containing foliage leaves only

The stigmas have a roughened surface (only visible under the microscope) which helps the pollen grains to adhere to it

THE LESSON

Aim.—To study a wind-pollinated flower, noticing how it differs from those already observed which are pollinated by insects

Material.—A large spray of Hazel catkins Small sprays showing catkins and pistillate flowers, sufficient for the children to share in pairs

Introduction.—If the buds have been brought out in the classroom, the children will already be familiar with their appearance. Tell them that the Hazel flowers are almost the earliest we find, certainly the earliest tree flowers Ask why we should call them flowers

I. Let the children examine the catkins closely to see if there is anything that suggests a flower They will probably see the stamens (As the stamens are very easily detached, the number to be seen is variable, and in any case they are rather too small to count) Is there anything else? Are there any petals or sepals? (No, the

stamens are protected only by the little green hoods or bracts) Is there any ovary? (If these are flowers, they are very different from any others seen.) Do they smell sweet? Do you think they would attract insects? Have you seen any insects round them or on them?

The children will probably suggest that it is too early for bees and flies Could the pollen be taken away in any other way? Remembering the sycamore, and by analogy with seeds and fruits, the children may think of the wind Let them shake the twigs as the wind might do. Clouds of dry, light pollen are shaken out. Notice that both the catkins and the stamens shake,—both have very thin stalks. Would other flowers shed their pollen like this? If there are Daffodils or other flowers in the room, try shaking them in the same way. The children will then see that the dry, light pollen is characteristic of the Hazel flowers, and can be easily carried by wind, just as tiny seeds can be carried.

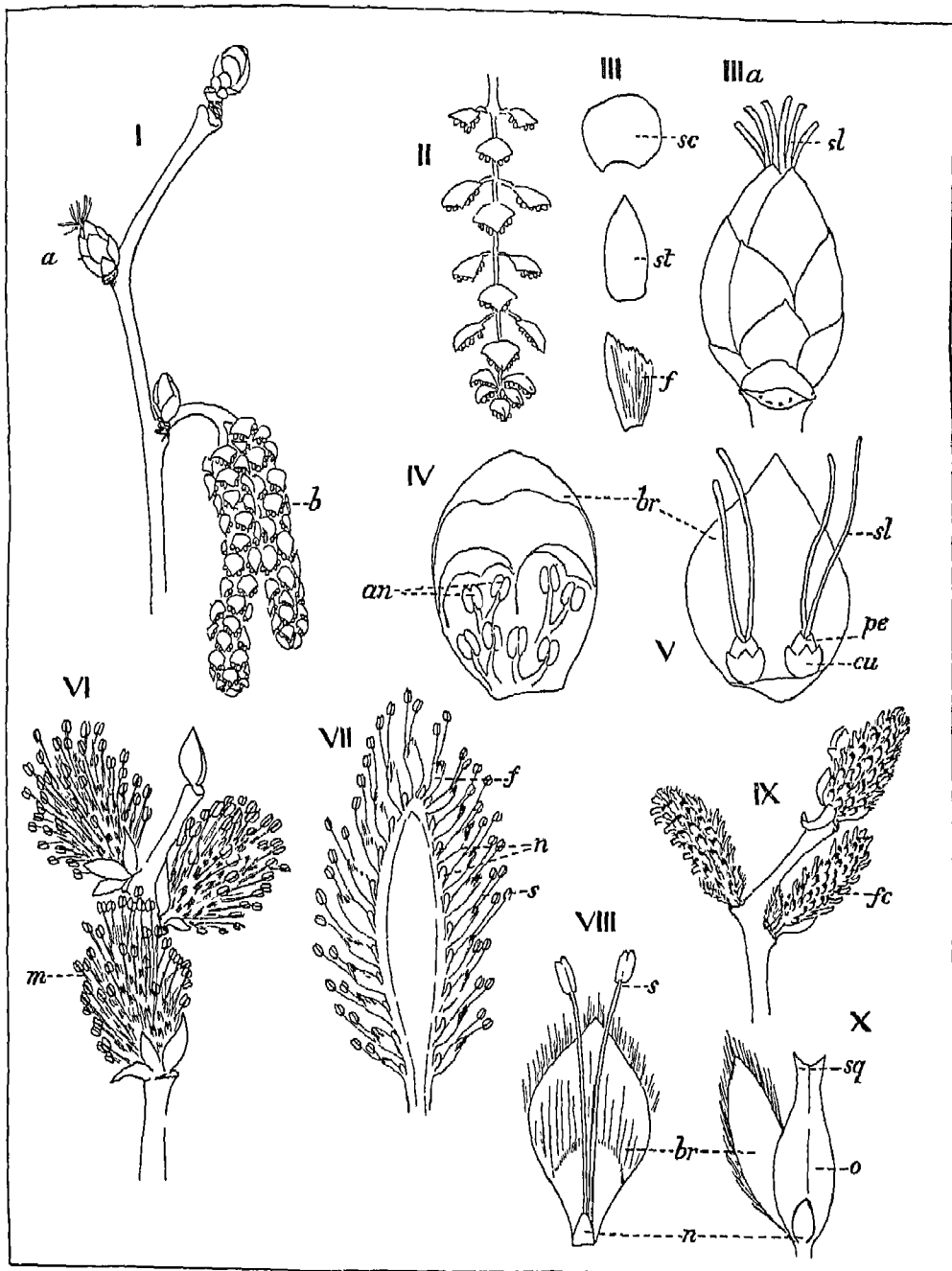
Questions.—Where is the pollen carried to? We could find no ovaries in the catkins, could they be anywhere else? Can you find anything on the Hazel twig that might be a different kind of flower? If the tufts of red stigmas are not found, draw attention to them and explain that these really are little clusters of flowers, and that each flower is only an ovary with two stigmas. The red stigmas catch the pollen as it floats by, and then the nuts can be formed in each of these buds The ripe nuts may have been seen in the preceding autumn How many grow together? (One, two or three.) Each little cluster is formed from one of these buds Recall the appearance of the nuts in October, each with its frilly green cup. These flowers are called pistillate flowers, because each is one pistil, or an ovary with stigmas If they receive pollen they will take all the summer to ripen into nuts.

II. Summarise the chief points by questions revising what has been seen or told. Either a blackboard summary may be made, or the children may write answers to questions. The following points would be recapitulated:

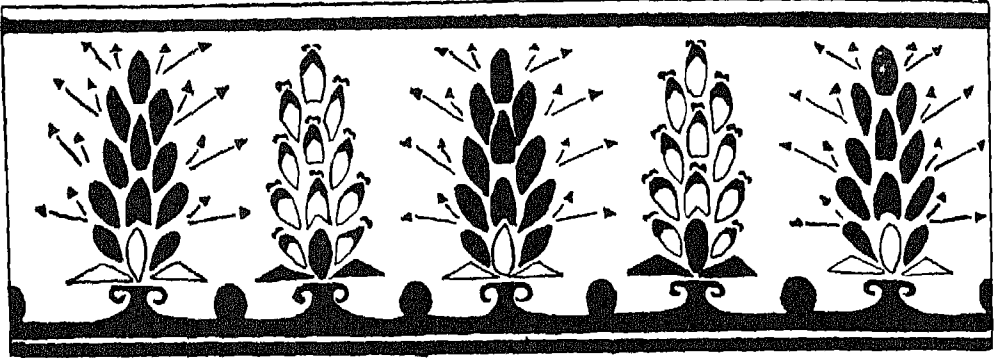
(1) The Hazel has two kinds of flowers, called staminate flowers or catkins, and pistillate flowers
(2) The staminate flowers have pollen, the pistillate flowers contain ovules.
(3) There is a great deal of pollen. It is very dry and light. It is carried by the wind to the pistillate flowers
(4) There are many flowers in a catkin, and many in a pistillate bud.
(5) The flowers come out before the leaves
(6) The nuts form from the pistillate flowers, one to three together.

(If it is decided that this summary is too long for a particular class, then points 2, 3 and 6 are the most important)

III. Any detailed structure is beyond the children in this stage, but brush-work drawings might be made to show how the catkins hang in the wind, and how the stigmas project to receive the pollen. The drawings could be annotated to bring out these features.

Plate VI

HAZEL I Branch showing *a*, female flowers, *b*, male flowers. II. Catkin, showing arrangement of male flowers. III. *sc*, scale of female catkin, *st*, stipule, *f*, foliage leaf IIIa Female catkin *sl*, styles IV Male flower *an*, anthers, *br*, bract. V Female flower *br*, bract, *sl*, styles, *pe*, perianth; *cu*, cupule surrounding ovary

WILLOW VI Male catkins (*m*). VII Longitudinal section of male catkin. *f*, flowers, *n*, nectaries, *s*, stamens VIII Single male flower *n*, nectary, *br*, bract, *s*, stamens IX. Female catkins (*fc*) X Female flower *br*, bract, *sq*, stigmas, *o*, ovary, *n*, nectary

XI. PUSSY WILLOW, PALM OR SALLOW

POINTS FOR THE TEACHER'S CONSIDERATION

OBTAIN the Willow, like the Hazel, in bud, and let it develop in water, if it is wanted very early If possible, obtain both staminate and pistillate branches, which grow on different trees At an early stage they can be distinguished because the green pistils begin to show through the silvery hairs. The opening pistillate catkins are often longer than the staminate. In both cases the buds are covered with reddish brown scales, which fall away to disclose upright catkins clothed in long, silky hairs, probably protecting the young flowers from frost and cold winds.

These flowers, contrary to expectation, are pollinated by bees, which often surround the trees on bright, sunny days in April, when the nectar is flowing As in the Hazel, each catkin is an inflorescence, not a single flower. Each flower consists either of a single pistil or a pair of stamens, protected by a bract. At the opposite side to the bract, at the base of pistil or stamens, is a tiny yellowish scale, just discernible; this is the nectary.

THE LESSON

Aim.—To see what kind of flowers the Pussy Willow has

Material.—Small sprays of Willow of both kinds, to each group of four children. These sprays can be interchanged

Introduction.—Ask the children what they remember about the Hazel flowers Notice that here is another tree which flowers before its leaves unfold, though not quite so early (the time varies in different localities)

I. Let the children describe anything they notice· the silky hairs; the tiny leaves, perhaps just beginning to open; the two kinds of catkins Ask if they can distinguish which is which. Let them describe the arrangement of each

Let them remove carefully and draw one little brown scale, with its two stamens. See whether any of them notice the scale-like nectary Let them do the same with a single pistillate flower, writing the name beside each.

Now ask if there is anything to tell us how these flowers are pollinated. They will no doubt reason that, as there are no attractive petals, wind is the agent Shake the catkins Very little, if any, pollen falls away, for it is not light and dry as in the

Hazel Then explain that this flower is an exception to what we should expect, for it is pollinated by bees, which come for nectar and pollen It is one of the earliest flowers from which they can feed Humble bees are particularly fond of it. Show by a blackboard sketch where to look for the nectaries, and let the children try to find them.

II. Let the children write short accounts of the Willow flowers and illustrate them by any sketches they like to make

III. Suggest that they shall look for bees round the trees, and also, later on, look for the fruits These, with their small capsules opening to let out light plumed seeds, should be shown on the Nature Table in due course.

XII. THE LESSER CELANDINE

IT is useful, sometimes, to make a detailed study of a whole plant in all the phases of its life in relation to its surroundings Such a study gives the children a realisation both of the various activities which have to be carried on, if a plant is to live and perpetuate the race, and of the close relationship between conditions and form The plant chosen should be a common one, and should present both interesting vegetative characters (e g special storage organ, creeping stems, a rosette of leaves or other means of establishing its position) and interesting features in connection with the production of flowers and fruits The following plants would be suitable —Narrow-leaved Plantain (Ribwort), Cinquefoil, Silverweed or Tormentil (three common Potentillas), White or Red Dead Nettle, Wood Anemone, Lesser Celandine; Dandelion; Daisy, Ground Elder (Goutweed), and Clover. The Lesser Celandine and Wood Anemone have been chosen to illustrate the method of study and the biological points that arise

The relationship between conditions and form may be studied by the comparison of the same plant taken from different habitats, so that the varying effects of moisture, shade, exposure and nature of the soil may be noted. Attention may be drawn to the "sleep movements" of the leaves of Clover and Wood Sorrel, and the etiolation (loss of green colour) of seedlings kept in the dark

THE LESSON

Three periods; the first two on flower and fruit, the third on vegetative characters.

(First and Second Periods)

Aim.—To study the flower and fruit of the Lesser Celandine. This phase is chosen to study first, because the flowers first attract children's attention and gain their interest, and because the early flowering explains the need for special vegetative organs and an alternative means of propagation.

Introduction.—If possible, spend a period or part of a period in looking at the plants out of doors. In this case show the children some flowers and write the name on the blackboard, and then tell them that they are going out to see where and how the flowers grow. If they grow in the school garden, this observation lesson need take only a quarter of an hour, but if the flowers grow some distance away, a whole period must be devoted to it.

II. Points which can be observed in the garden.—

(1) Differences in general growth (height, number of leaves) due to differences in shelter and undergrowth

(2) The Flowers. all stages in their growth, and especially the fruits, which, after pollination, are to be found under the leaves

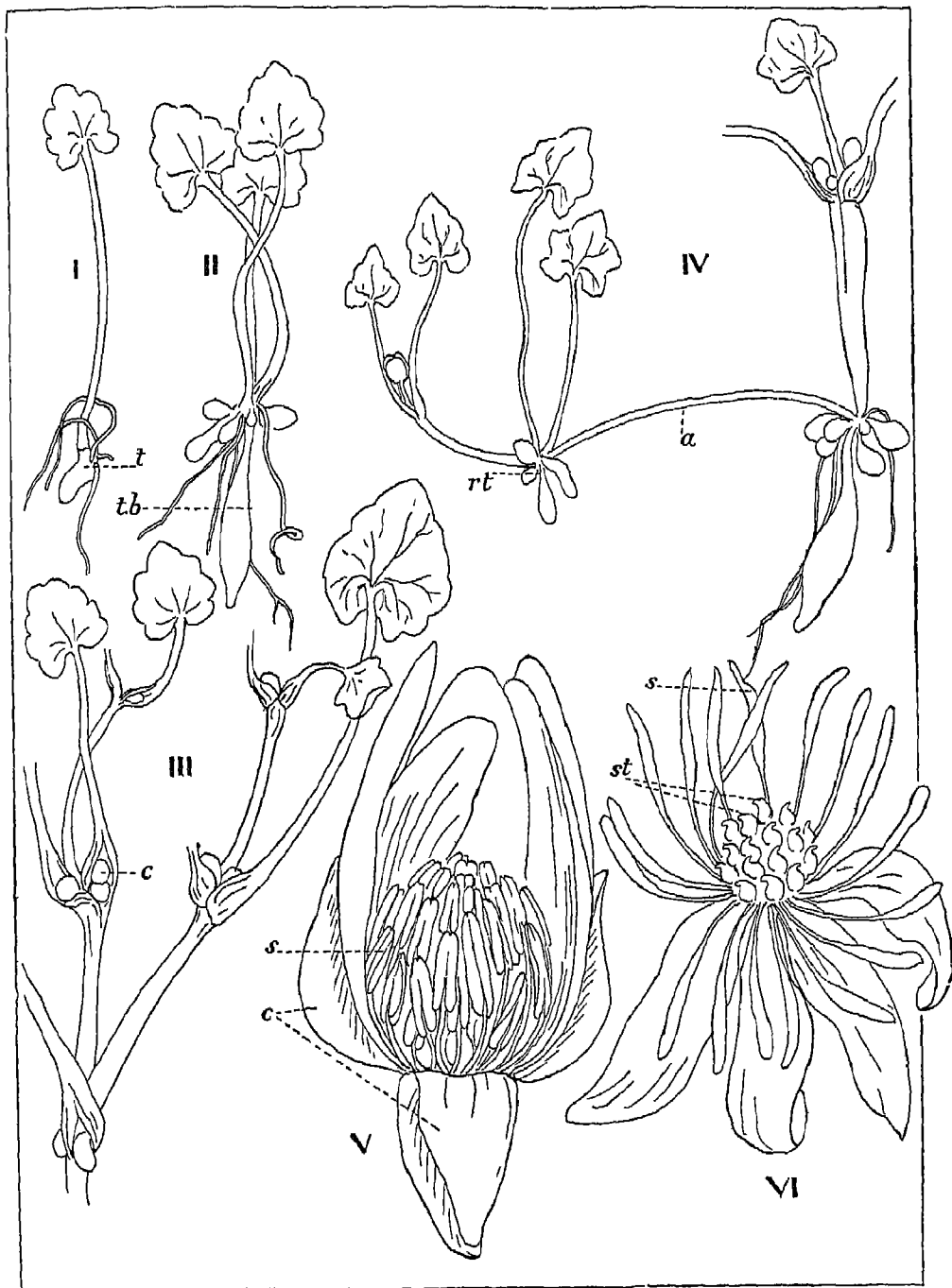
If the children cannot be taken out, ask them beforehand to look for the plants, and give definite points to find

III. Have the children arranged in small groups, each with a bowl of flowers covering various stages.

Let them notice the buds, with the calyx enclosing the rest of the flower, then the opening flowers What can be seen? A calyx of 3 to 5 sepals, then 6 to 10 bright yellow, narrow petals, slightly green outside, and looking as if they had been polished inside. These surround the stamens, of which there are many. Notice the position of the stamens in this and in a wide-open flower. In the half-open flower they are bent towards the centre, thus hiding it. In the open flower they have straightened out and bent slightly backwards, and the ovary can be seen in the centre. Look very closely at the stamens. Notice that the *pollen-sacs* or *anthers* open outwards, so that the pollen will fall, not on the ovary in the middle, but into the cup of the flower outside the stamens This means that the pollen cannot make its own seeds grow, or, as we say, cannot *fertilise* its own seeds. So it is necessary to obtain pollen from another flower How is this done? Does the wind bring it or do insects? Have you seen any insects on the flowers? (Small black flies [*thrips*] are often seen inside the flowers Very small beetles, dusted with pollen, may sometimes be seen. If the weather is warm, there may be bumblebees, hive bees, tortoiseshell and cabbage butterflies.) The plants go on flowering for a very long time, from March into May, so that a good many may be visited by insects

Ask if the children have noticed the fruits forming. If they have not, suggest that they shall look under the leaves. What shall we look for? Look at the inside of the flower, and see what the fruit will probably be like. The ovary consists of several separate parts, called *carpels* If it is impossible to visit the growing flowers, gather a clump with fruits under the leaves and plant it to show to the children. Protect by a glass shade.

Show the fruits They are like the ovaries, except that they have grown larger, and each carpel has become flat with a slight ridge at each side. The carpel is drawn out into a little point at the tip, the stigma, on which it receives pollen. Now show the various stages by which the flower stalk bends over and hides its fruits under the leaves. This may perhaps prevent the fruits from being eaten while they are quite soft, before they are

PLATE VII

LESSER CELANDINE I Seedling, showing tuber (*t*) beginning to form at the junction of root and shoot II Older plant with (*t b*) III Plant with tubers in the axils of cauline leaves (*c*) IV Rooted thinner (*a*) V Young flower showing stamens (*s*) bending over stigmas, ed out, *st*, stigmas

ripe As they ripen, the fruits straighten out again Then one by one the nutlets fall off. Perhaps the wind carries them a little way Suggest that the children shall look and see how far away from a patch of plants they can find seedlings

Remind the children that the flowers are formed very early in the year, before there are many insects If we think of the places in which the Celandines live, does it help us to understand the value of this? (Yes, because they grow in shady places; when the leaves of the trees, bushes, and undergrowth come out, they will be hidden and their flowers cannot be seen by insects. Hence they need to flower before the leaves come out)

II. Let the children make drawings of a flower to show the cup shape, and of a fruit

(Third Period)

Aim.—To examine the vegetative parts of the plant.

Introduction.—If the Lesser Celandine grows in the school garden, begin the lesson by taking the children out to see it in as many different situations as possible If it does not grow in the garden, tell them beforehand where to look for it, and ask them to find out all they can about the kind of place in which it grows, and how it grows In either case the following points should be noted·

(1) The Lesser Celandine grows in shady, sheltered places, especially under trees.
(2) It grows in damp fields which may be quite open to the sun.
(3) When it is amongst grass, and therefore shaded, it grows taller and straighter than on bare or open ground On open ground the leaves are pressed close against the soil and are often small

When the children are gathered in the classroom these points should be collected

I. The groups of children would each be given a bowl of water containing plants in the five stages enumerated. They would be asked to find the youngest plants first, and describe their growth This would probably show several small leaves growing from a common base, a few fibrous roots growing downwards from the same position, and one or two minute, round or oval tubers just forming. These would be new to the children. Give the name, and explain that they are rather like bulbs, and that they are the plant's way of storing food to feed new plants Look at the next stage and see what has happened to the tubers There are more of them, and they have grown longer Count and see how many Measure how long they are. The number of leaves has also increased, but not the number of fine roots, so it seems that these tubers act as roots

Ask if the children can find any small tubers in other parts of the plant. They will discover that they are present in the axils of the leaves on the stem, and they will find them in different stages, some of them enclosed by the leaf base, which is thin and wraps round the stem, others bursting it and showing through. Explain how the stems bend down and root at the nodes, the tubers becoming embedded in the soil. A blackboard diagram is useful here Let the children see this stage It may not have been possible to find enough specimens for each group

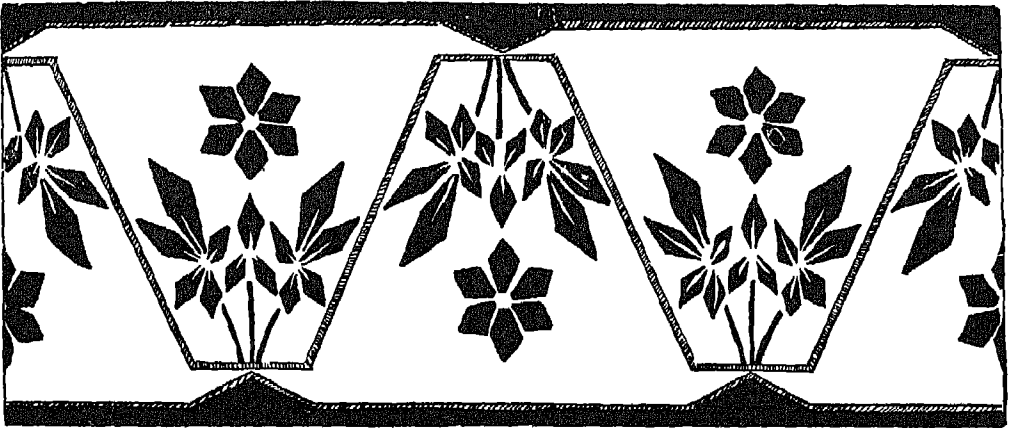
II. Summarise on the blackboard

(1) Seedling, small tubers
(2) Well-grown plant, many tubers, size (range)
(3) Shoots form tubers, called bulbils, in axils of leaves.
(4) Shoots bend down and root
(5) A new plant grows at the node
(6) Bulbils may separate and from them new plants grow.

III. Let the children make labelled drawings to show the first formation of tubers, and a shoot with bulbils in leaf axil. There should be no difficulty in obtaining plenty of examples of this stage without uprooting plants, and a few seedlings could be exchanged. All the children need not draw the same stage at the same time

IV. Notice how quickly the plants have drooped when out of water They grow in damp places where there is plenty of water. They have a very thin skin on the leaf, *cf* Holly, with its hard surface

V. Plant the Celandines in the garden if possible, but, if this is not possible, plant them in a window box, or in plant pots

XIII. WOOD ANEMONE OR WIND FLOWER

THE Wood Anemone is another early flowering woodland plant, found in thickets and clearings, in flower in April and May Its delicate white cups, suffused with mauve or green on the outside, are born on a frail stem 5 to 10 in. high, with a group of three deeply-cut leafy bracts about 2½ to 3 in. below the flower Each plant bears a single flower each year, and the bracts serve as foliage leaves, no others being formed Like the Lesser Celandine, it increases its area by means of underground storage organs, but in this case it is the main stem that creeps underground, becoming thickened to about ⅛ in. as it stores food for next year's plant This *rhizome* (or creeping storage stem) is woody, and covered with a thin protective layer of cork, except just at the tip which is a terminal bud protected by several small white scale leaves The stem consists of short internodes, with the scars of former scale leaves at the nodes, and a small oval scar on the upper surface of each node indicating where last year's flower stalk has broken away Short fibrous roots are given off all round the nodes, but chiefly from the lower surface. Although these do

not extend very widely or penetrate deeply, they give the plant a firm hold, so that it is not easy to detach, but the whole of the flower stalk comes away easily, leaving the rhizome behind with its terminal bud ready to carry on growth. The flower bud arises in the axil of a scale just behind the terminal bud.

Like the Lesser Celandine, the Wood Anemone is a relation of the Buttercups, being a member of the family Ranunculaceae.

THE LESSON

Aim.—To study the Wood Anemone in relation to the conditions of its life, and to compare it with the Lesser Celandine.

Material.—A flower for each child. A few flowers which are forming fruits, both with the perianth and without. One or two roots, placed on the Nature Table in a glass vessel beforehand, so that the children can look at them both before and after the lesson It is important to decide when it is justifiable to take roots In the case of the Lesser Celandine, the plant is so prolific and hardy that six or eight roots might be used, but the Windflower has a more restricted distribution, so that it is better to have only one or two Explain this distinction to the children.

Introduction.—Show the class the flowers, and ask where they have seen them growing. Note that they, too, are moisture-loving plants, that they wilt very easily out of water, having a very delicate skin that will not prevent water from evaporating from stem, flowers and bracts. Draw attention to the similarity between this and the Celandine in habitat and flowering time. This will raise two questions:

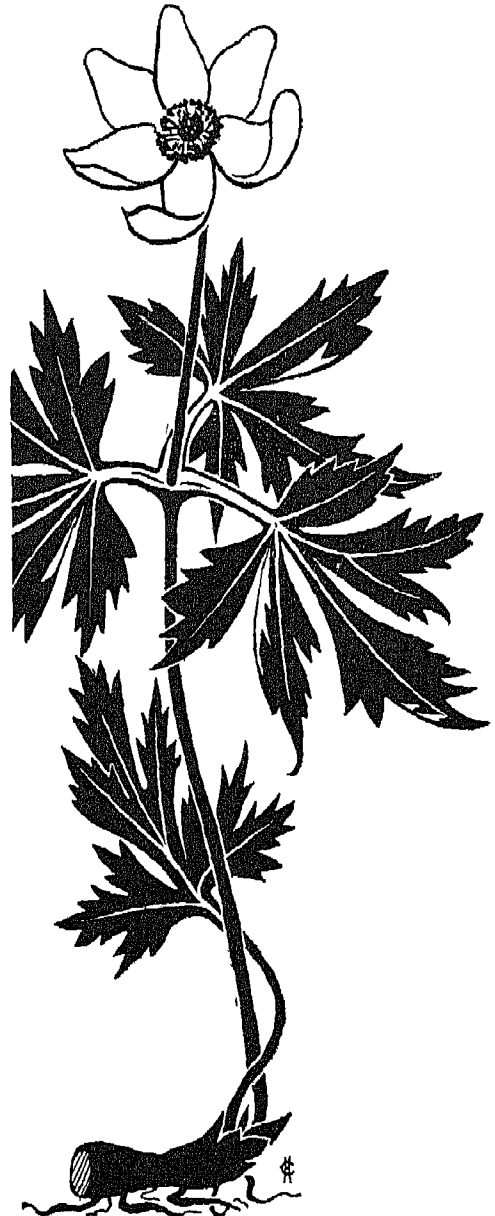
(1) Do they form seeds in the same way?

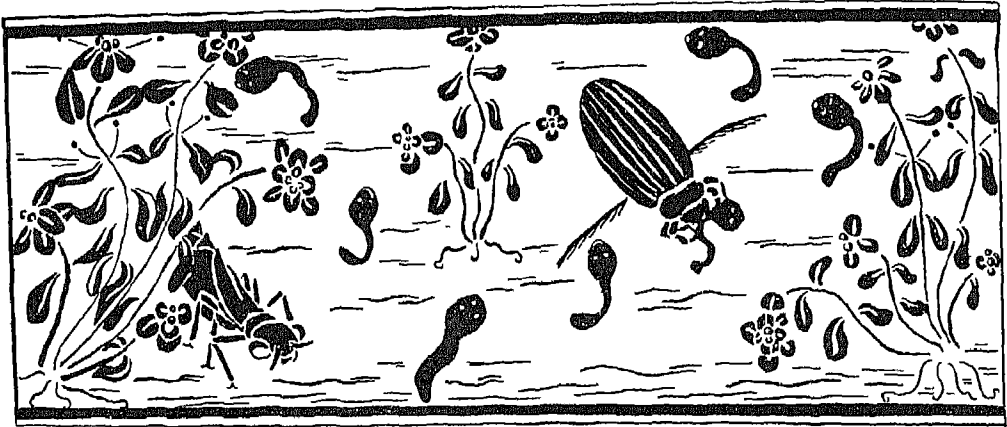
(2) Have they any storage organ to help them to flower so early, and to spread the plants vegetatively?

I. The examination of the flower will proceed on the same lines as in the case of the Lesser Celandine, and points of similarity and difference will be noticed and discussed.

II. These points might be tabulated on the blackboard as they arise; somewhat as follows.

	Wood Anemone	*Lesser Celandine*
Time of Flowering	April, May	March to May. (Later in the north in both cases)
Habitat	Damp places Woods, thickets, clearings.	Damp places. Woods, beside ditches and hedges, under single trees and in open damp fields.
The Flower.	A simple cup 5 or 6 perianth leaves White and mauve Many stamens.	Similar 3 to 5 green sepals. 7 to 10 petals. Shining gold. Many stamens; at first bending over stigmas.
Insect visitors.	Any actually seen	Same, e.g. small black flies and beetles. Bees
Fruits formed.	Yes. The perianth leaves remain until the fruits are nearly ripe. The fruit is	Yes. The petals and sepals drop off, as soon as the stigmas have received pollen.

	Wood Anemone	*Lesser Celandine*
	bent like the flower. Several free carpels form nutlets.	The stalk bends down and hides the fruit under the leaves till it is ripe, when it straightens out again. In the same way several free carpels form nutlets.
Seedlings found	?	Yes, often outside the patch of plants.
Storage organs.	A creeping underground stem or rhizome Flower formed just behind terminal bud.	A root tuber, or special kind of root, growing from the nodes in the axil of leaves The stems bend down and the tubers root Buds grow upwards and form new plants. Bulbils separate

Try in both cases to get the children to count the numbers of fruits in a measured area, e g. a square yard. The difficulty that there are so few insects to bring pollen and so ripen the seeds, makes the vegetative propagation of new plants specially important in both cases

III. The flower may be drawn as another instance of a simple open cup which allows any insect to come and feed on pollen, on the chance of some being carried to other flowers

XIV. LIFE IN A POND

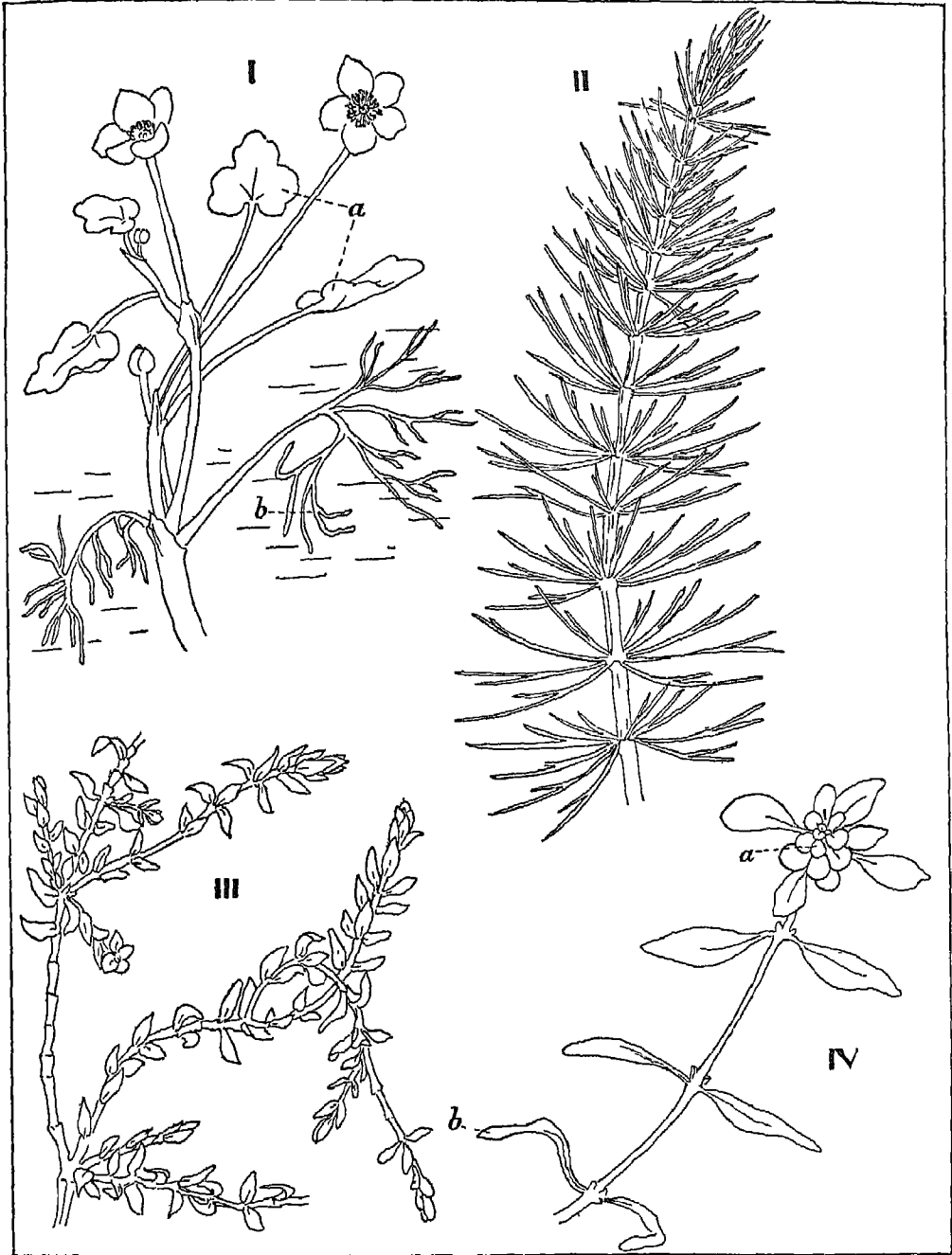
POINTS FOR THE TEACHER'S CONSIDERATION

THE study of life in a pond gives us a glimpse of a strange little world, almost self-contained, presenting in miniature many of the problems which the creatures in the much wider regions of land and ocean have to solve It is true that the pond receives its water supply from outside,—from rain and drainage,—and that the organic matter (such as leaf mould and animal manure from the fields) which drains into it provides food for the minute, invisible organisms, especially bacteria, which in turn feed the larger animals or provide for some of the needs of the water weeds. It is also true that the animals and plants in a pond depend upon the outside atmosphere for the air they breathe. But in a pond they live at such close quarters that their inter-dependence, and the inter-action of their lives, are more readily grasped than perhaps is the case in any other kind of community.

Both animals and plants must be able to obtain food, oxygen for breathing, shelter and safety from enemies, and in particular, protection for their young stages. In many cases it is also important that they shall have some means of protection or escape if the pond dries up

Broadly speaking, animals feed on plants, some of them directly, as do the pond snails, tadpoles, and larvae of some kinds of beetles Others feed on animals which have been reared on a vegetarian diet They can feed only on substances which have formed part of an animal or plant body, or as we say, on organic substances. They obtain by this means energy for their activities which has been stored up by plants as it radiated from the sun.

Plants obtain some of their nutrition by the activity of their green parts, which take up the sun's energy, and use it to convert the gas carbon dioxide, with water, into carbohydrate food material They are to this extent independent of animals But they also require nitrogen in the form of nitrates This they obtain through the agency of bacteria, which obtain it partly directly from the air, and partly by decomposing the dead bodies and waste matter (excretions) of animals. Thus plants take toll of

PLATE VIII

PLANTS SUITABLE FOR THE AQUARIUM

I WATER CROWFOOT (Ranunculus aquatilis), natural size *a*, floating leaves, *b*, submerged leaves
II HORNWORT (Ceratophyllum),—branch, reduced size
III CANADIAN WATERWEED (Anacharis), natural size The plant is dark, stiff and glossy
IV. STARWORT (Callitriche), natural size *a*, floating leaves, *b*, submerged leaves.

the animals in water (The bacteria themselves are regarded as plants.) Since the bodies of plants, eaten by animals, contain nitrates, this series of inter-actions between plants and animals is referred to as the *nitrogen cycle.* This cycle operates everywhere, but is particularly clearly seen in a pond

Yet another interchange takes place between plants and animals in a pond Both require oxygen to breathe, and both obtain it in solution in the water Much of this oxygen passes into the water from the air above through disturbances of the surface, and through rain. In running water there is more possibility of admixture with air than in still water. But supplies obtained in this way are small. It so happens, however, that in manufacturing carbohydrates, plants give out oxygen as a by-product. (This is a distinct process, in no way connected with their breathing) This can be used by animals for breathing. Now both animals and plants give out carbon dioxide as a result of breathing, and this is available for plants, which need it for the making of carbohydrates (*photosynthesis*). Thus there is a second cycle of inter-action, the *oxygen-carbon-dioxide cycle.* This also applies to terrestrial life but is very clearly seen in a pond.

Now it will be seen that, under these circumstances, the problem of obtaining sufficient oxygen may be a difficulty for plants and animals, and so may the question of the nitrate supply. Hence, if a pond community is to flourish, there must not be too many animals to feed on the plants The number of plants is less important, since they are contributing both oxygen and nitrates to the animals The proper relation between the two is referred to as *the balance of life.*

Since the oxygen supply dissolved in the water is limited, it will be seen that if some of the animals can obtain oxygen from the atmosphere, it will lessen the demand upon the water, and so make it possible for a larger number of animals to dwell there. This adjustment has actually been made. It has been seen already that the pond snails have developed a breathing system suitable for dry land, and have then gone back to live in water, but that they still come to the surface to breathe. All insects found in ponds are also immigrants from land So, too, are the adult frogs and newts which return to the ponds for the breeding season Some of the insects have become adapted to breathing under water, and thus they use the dissolved oxygen, but others have retained the habit of breathing atmospheric oxygen and come to the surface, as the snail does, to breathe.

Here a word must be said about the importance of the *surface film* Owing to the difference in tension between the water and the air, the surface of the water is stretched, so as to form a thin water membrane so strong, that by filling a glass of water from a tap very gently, one can fill it beyond the surface, the surface film preventing it from spilling. Many pond creatures are able to glide on to the surface film and suspend themselves from the underside of it, sometimes by means of a special structure But the pond snails suspend themselves by the foot, while they penetrate the film at one small spot and protrude a short tube or valve, into which they can suck air without the water entering This property of the surface film, and the delicate devices adopted for taking advantage of it, are of the utmost importance in enabling these animals to obtain fresh air for breathing

Of the animals chosen for study in this year's scheme, the pond snails, water beetles and their larvae, obtain atmospheric oxygen, the dragon-fly larvae (except possibly in the last stages after the wings are formed) and "caddisworms" obtain oxygen dissolved in the water.

It is unlikely that enough Great Water Beetles and their larvae, or large dragon-fly larvae can be obtained for a whole class to work upon at once; so that these creatures would be watched and drawn by small groups at a time If possible, whenever such

a wonderful event occurs, everybody in turn should have an opportunity of seeing the dragon fly emerge from its larval skin and change into the brilliant, dazzling fly Small dragon-fly larvae are generally plentiful, and caddisworms and pond snails can be studied at the same time; so that in the course of a few weeks' study the whole class becomes familiar with them all The detailed suggestions which follow are for small groups of children or for those working singly, but before beginning classroom work, it is advisable if possible to take the children to see a pond and to do some collecting under the teacher's guidance Twenty children make a large enough group to take at once, unless the teacher can have the assistance of another teacher, as the excitement is usually great. The rest of the class will need to be given work to do in school, and the teacher will need to take two expeditions, spending about three-quarters of an hour at the pond She may have to make other visits herself to collect additional material, and she will certainly need to make a preliminary visit.

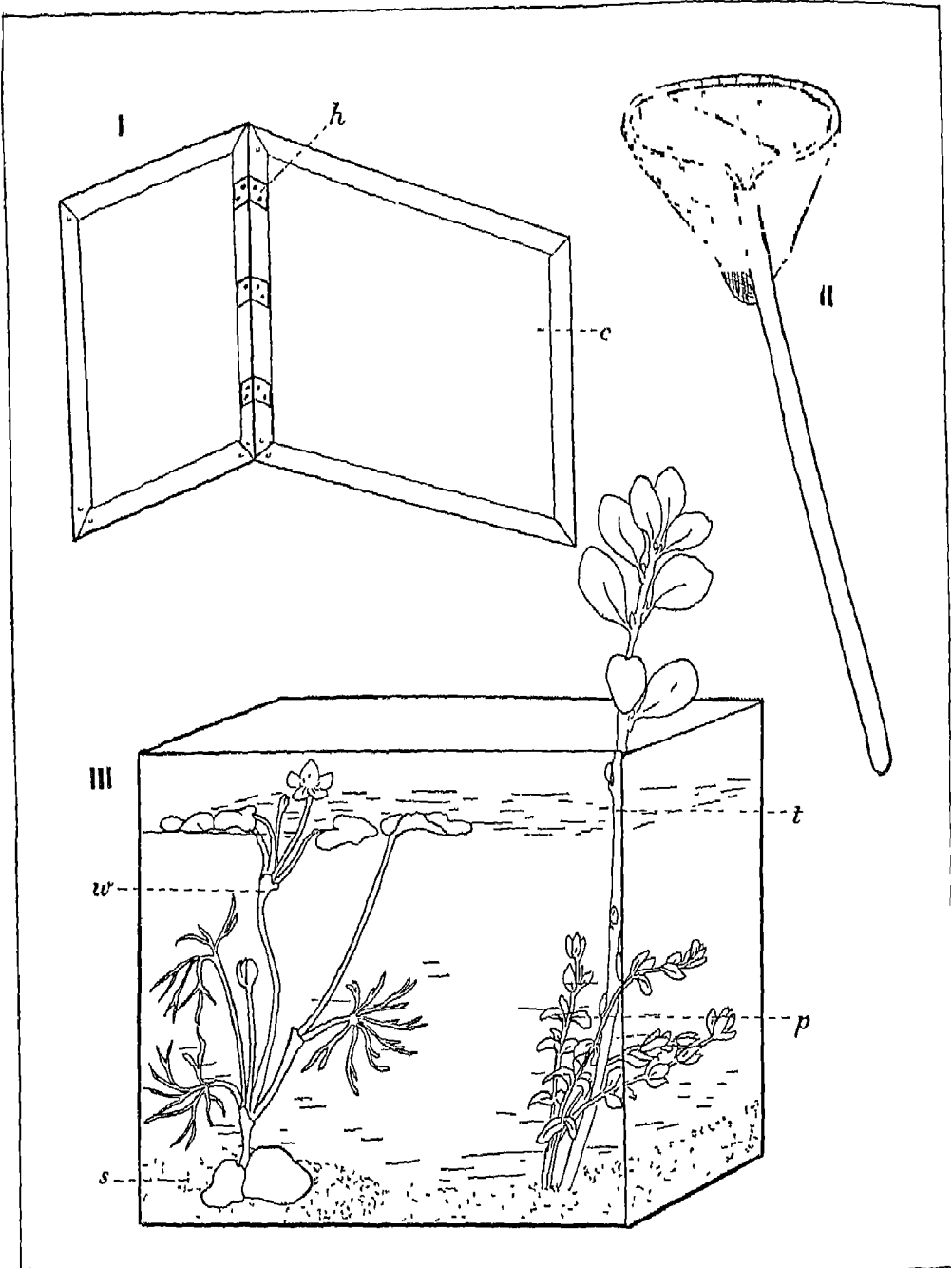
THE LESSON

The children should be divided into groups of four or five, each group having a leader responsible for keeping them together. One net and one jam jar might be provided for each group, and two or three small tubes or potted-meat jars for creatures which need to be isolated, for instance, beetles and their larvae and dragon-fly larvae Nets can be made of fine net or muslin; or loose-meshed canvas, stitched on to a ring of copper wire bent into shape with the ends twisted tightly with pliers, and firmly bound round a walking stick or broom handle. It is advisable, however, to have one or two nets with a really strong frame (which dealers in naturalist materials will supply) so that they can be worked in forcibly amongst the roots of the weeds to dislodge beetles and large larvae clinging to them Jam jars should have a string handle firmly attached to the neck, or one suggestion I have seen is to knit or net bags of macramé thread into which the jars will fit; this lessens the risk of breakage.

On arrival at the pond collect the children for a short talk on the conditions. Notice its aspect, whether it is sunny or shady, sheltered from winds or exposed. Then notice the plants growing round the edge, the bushes and undergrowth; then the water-loving plants such as Willow-herb, Figwort, Ragged Robin, then those which actually have their roots in water, such as Flags, Rushes and Reeds; then the floating Pondweeds (duckweeds and threadlike weeds) and plants with floating leaves, such as the Great Pond Weed and Water Crowfoot or Buttercup. Is the pond stagnant, or are there bubbles indicating springs? Are there trickles of water indicating drainage through it?

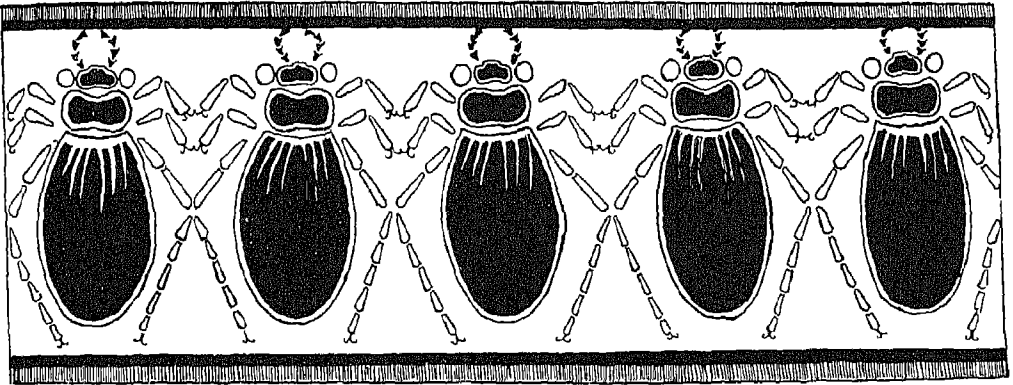
Give the children some instructions as to the use of the net. Before beginning to dip they should first of all watch the pond for a minute or two for any signs of living things Newts, beetles and pond snails may be seen coming up to breathe, tadpoles and minnows or sticklebacks may be seen if there is a shallow margin, dragon flies, especially the small blue ones, darting and hovering over the surface or resting on reeds, many flies hovering about, pond skaters sliding quickly, and little steel-blue shining Whirligig Beetles dancing their rounds over the surface film of the water. The children should then be shown how to dip a net gently so as not to disturb the surface, or the creatures below it, more than is necessary, and to drag it gently along just below the surface. They may then dip more deeply, and push the net in amongst the rooted weeds, but not violently or ruthlessly, being careful not to break the plants or stir up the mud A little disturbance is inevitable, but there is no need for the pond to look as if a party of hooligans had been visiting it

The teacher will go from group to group, advising and shewing how to use the net,

PLATE IX.

SETTING UP AN AQUARIUM

I Screen, having one long and one short side, with dark green casement cloth (*c*) stretched across it with drawing pins, *h*, hinges II Smal net, 3 in in diameter, for lifting out specimens or waste food III Aquarium set up, *s*, sand, *w*, Water Crowfoot, *p*, Canadian Pond weed—attached to stones or a piece of lead, *t*, leafy twig for dragon fly, may fly and caddis fly larvae to crawl out upon N B Tanl should not be overcrowded with weed

and restraining too much impetuosity if accidents are to be avoided With a very excitable class on a first visit, it is a good plan to have only one net, and let each child use it while the teacher controls its use She will identify the animals found and have the jars half-filled with water and a little weed. On the return to school she will supervise the sorting out of the animals and their disposal in the homes which should be already provided for them some days before so that the necessary weeds are established.

XV. THE GREAT WATER BEETLE

AIM.—To study the habits of Dyticus (or Dytiscus) marginalis, the Great Water Beetle (There are other beetles with the same English name)

Material.—For a small group of children, a glass jam jar or small deep rectangular tank, having 6 in or more of water, containing one Water Beetle, or a pair (be sure they are male and female, or one will be killed) Another jar with a larva Rooted Canadian Pondweed, Starwort or Water Crowfoot.

Food· very small earthworms, tadpoles, "blood worms" (found in water butts), occasionally scraps of raw meat, or blow-fly larvae, "gentles "

The study.—Let the children notice all they can about the appearance of the adult beetles They are about 1½ in long, with a horn-covered body, shaped rather like a shallow boat, flat on the back, and rowed along by a pair of very long legs which are fringed with bristles to give them a blade like an oar These move quickly. They can also be used to steady the beetle when it is resting in one position There are two other pairs of less conspicuous legs The first pair are very short, turned forwards, and serve to hold its victim while the beetle tears it to pieces with its sawlike jaws, which project just under the head (There are three pairs, two with branches, called *palps*, which serve as organs of taste and touch, but the details will not be distinguished by children The palps may be seen quivering just below the head, however) A pair of feelers project from the angles of the head beside the eyes These feelers are finely jointed The legs are also jointed

Three regions of the body can be distinguished—the head, thorax and abdomen The legs are joined to the lower side of the

thorax, the hard wing covers to the back of the second joint or segment, and the thin, delicate wings, folded under these covers, to the third segment (The back is covered by the wing covers, but if a dead beetle is turned on its back, the abdomen is seen to be jointed. There is no need to trouble children with these details, however, unless they notice and ask about them) The wing covers are grooved in the female, smooth in the male; there is a yellow band round their margins. The male is also distinguished by a pair of round pads on the front legs.

The beetle swims with vigorous, long jerks if disturbed, or if it makes a sudden dart at a victim; but if left alone it is to be found for long periods resting in an oblique position, balanced in the water by its backward-directed long legs. From time to time it will come to the surface of the water and project the tip of the abdomen, raising the wing covers slightly, so that a stream of air can pass under the wings to the paired breathing pores (*spiracles*) situated on the back A flat bubble of air can often be seen just beyond the wing covers at the end of the body. Children will notice the constant return to the surface, but it is so different from any mode of breathing known to them that it is impossible to infer what is happening It has, however, been proved that this method of breathing is actually taking place

In addition to observing these movements, it will be seen that the beetle cannot remain at the bottom except by swimming about or by clinging to weeds. It floats to the top It is therefore, like the snails, lighter than water.

The children should time the visits to the top and notice the longest and shortest times that the beetle stays below without breathing

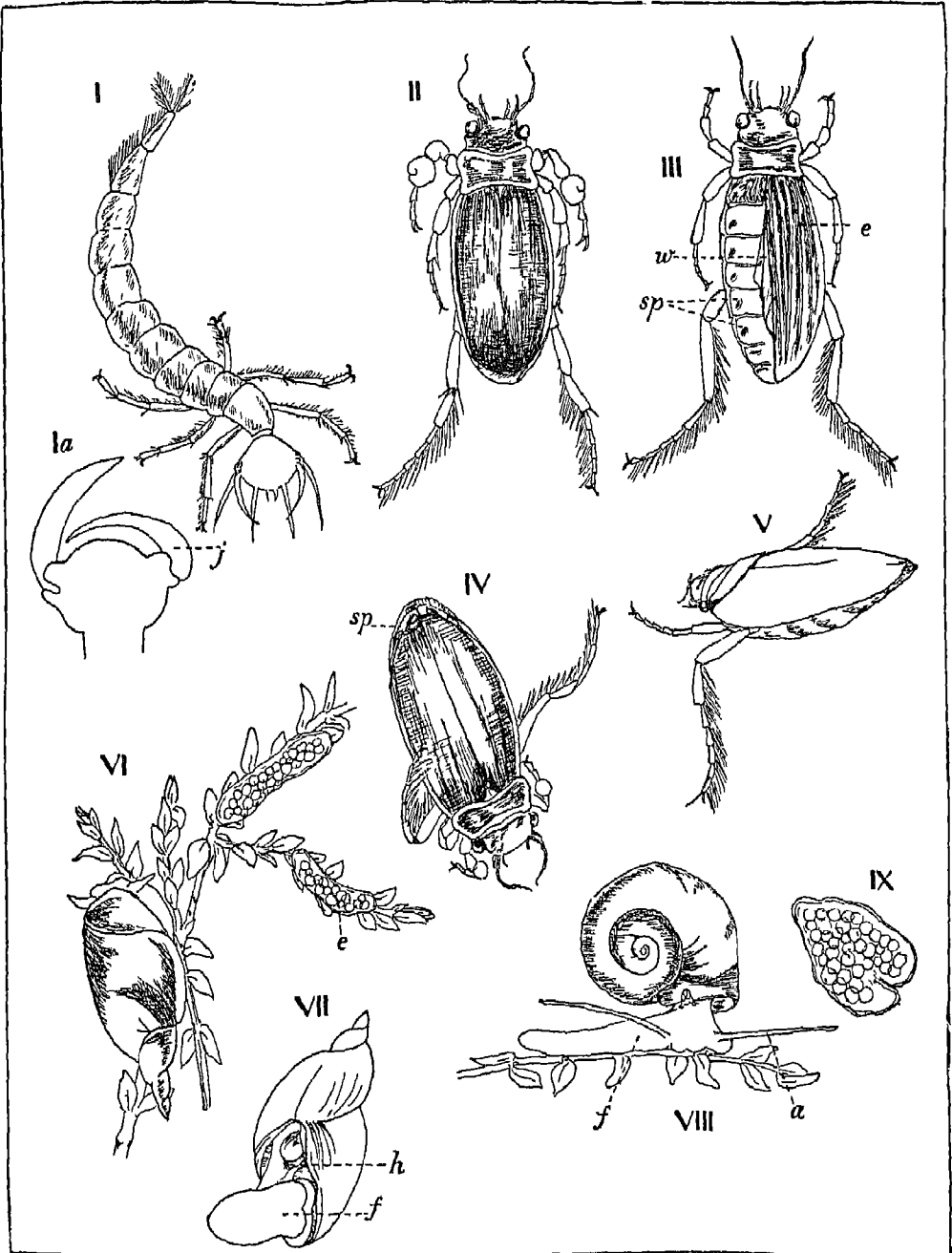
It is a voracious feeder and the sight is not pleasant, but since children like to keep pond creatures at home, it is important that they shall realise that they *must* be fed on the right kind of food In school, however, the teacher may prefer to feed them herself when the children are not present

The children may be directed by means of short written instructions and questions, e g.

(1) Notice all the movements the beetle can make. Try to draw it in a resting position. Draw one of the long legs which serve as oars.
(2) Count (by the clock) how often it comes to the top. Try to see exactly what it does
(3) Is it heavier or lighter than water? How do you know?
(4) Draw the back of the female beetle to show how it is different from the male

The larva.—The larva can be watched and its movements recorded in the same way As it is a voracious feeder, it needs to be supplied daily, at intervals, with several small earthworms, "blood worms" or tadpoles. Since it is covered by a skin hardened with *chitin*, a horny substance, it can grow only by shedding its skin periodically. The children should watch for this process The cast skin should be placed in a watch glass standing on dark paper, where the details of the structure can be clearly seen. It will be found that the skin is split down the back, near the head end The fine, piercing jaws, delicate legs and jointed body are all clearly indicated in the cast skin The body is long and slender, of a sandy colour, with a broad, almost triangular head, having small black eyes (really a cluster) at each corner of the broad front, and a pair of narrow, curved, sicklelike jaws. These are in reality both piercing organs and tubes which can suck the blood of a victim When in use, they fit into the corners of the mouth, which is kept tightly locked, and very rarely, if ever, opened, all the food passing as juice through the jaw tubes, which are pierced at each end.

When the larva comes to the surface to breathe it presses against the surface film

PLATE X

GREAT WATER BEETLE (DYTISCUS) I Larva Ia Head of larva showing jaws (j) II Male beetle III Female beetle *sp*, spiracles, *w*, wing, *e*, wing case (elytra) IV Beetle suspended from the surface of the water when breathing, spiracles (*sp*) take in air from atmosphere, elytra open V Beetle swimming, oblique position

WATER SNAILS VI Limnaea—feeding on water weeds, *e*, eggs of Limnaea VII Limnaea at the surface of the water when breathing *h*, breathing hole, *f*, foot VIII Common Trumpet Snail (Planorbis) crawling over water weed *f*, foot, *a*, antennae. IX Mass of eggs laid in aquarium of Trumpet Snail

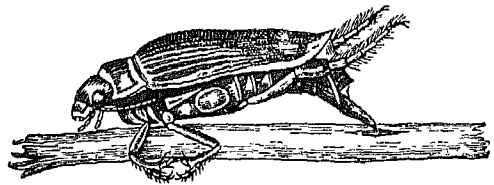
two narrow, leaflike *styles*, attached to the last segment, and these act as a sucker and keep it suspended there In order to catch its prey it lurks in the shadow of weeds, with its jaws open. Its sandy colouring and still posture make it inconspicuous, when a small worm or soft-bodied insect comes near the larva it makes a sudden dart and closes its jaws upon the prey, then sucks the juices and releases the shrivelled remains Its position, head downwards in the water, with the body curved, the head slightly bent downwards, and the long, thin legs and open jaws outstretched, is very characteristic If disturbed, it moves through the water by a sudden violent contraction of the whole body, which shoots it some distance It is so quick that the actual detail of the movement cannot be easily detected

If full-grown larvae are obtained, they will require soil if they are to continue their development. The best way to arrange this is by placing an earthenware saucer of water in a convenient case (one with glass and perforated zinc sides and a zinc base is useful) and surrounding the saucer with a layer of soil up to the rim, and sloping upwards slightly to the sides of the case. Close-cut turf can cover the soil, which must be kept damp If the whole can be arranged in a perforated zinc tray which can be slipped out at the front, this can be sunk in water to moisten it when necessary

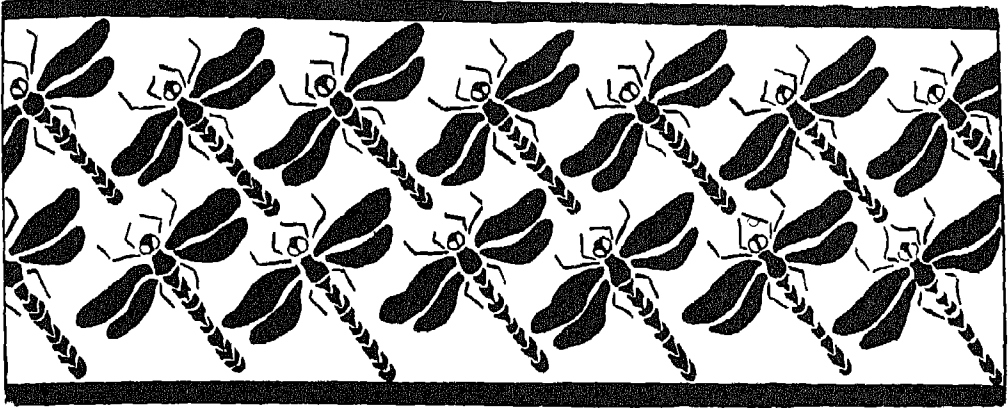
Stones and weeds must be arranged at one side of the saucer to allow the larva to creep out One or two bits of twig may be placed slanting in the saucer, so that they project over the edge. These can be weighted with small stones. A simple way to make a "home" for a larva about to pupate, is to obtain an earthenware plant-pot saucer, or small enamel or earthenware dish (the little dishes called "nappies" are suitable) Make a small perforated zinc tray to fit one side and fill it with soil, covering it with short moss or close-cut turf Fill the dish with water and fit up as described. Cover with a glass plate. When the larva has found its way into the soil it will be necessary only to keep enough water in the dish to keep the soil damp The larva will creep into the soil, make itself a hollow chamber, and there become quiescent, cast its larval skin for the last time, and become shorter It lies in a curved position in the cell it has made, while the body is making internal changes, and then the pupa splits its skin and the perfect insect emerges It remains in the soil for some time before making its way back to the pond, as the skin is white and soft, and must become hard and dark coloured

PUPA OF DYTICUS, DORSAL VIEW

(From Schiodte)

If the pupa is formed in the middle of summer, this stage may last only a week or two, but if towards the autumn, it will remain a pupa till the following spring—so this is another case of hibernation The female beetle inserts her eggs in incisions in the stems of weeds. She makes the incision with a special sharp instrument enclosed in the abdomen Thus the Great Water Beetle is an instance of an insect highly adapted for a life on land, returning to the water and spending the whole of its life there, except for the pupal period, yet remaining dependent on the air above the pond for breathing In this feature the Great Water Beetle resembles the Pond Snail, which also exhibits no re-adaptation to breathing under water.

FEMALE DYTICUS LAYING EGGS

(From Régimbart)

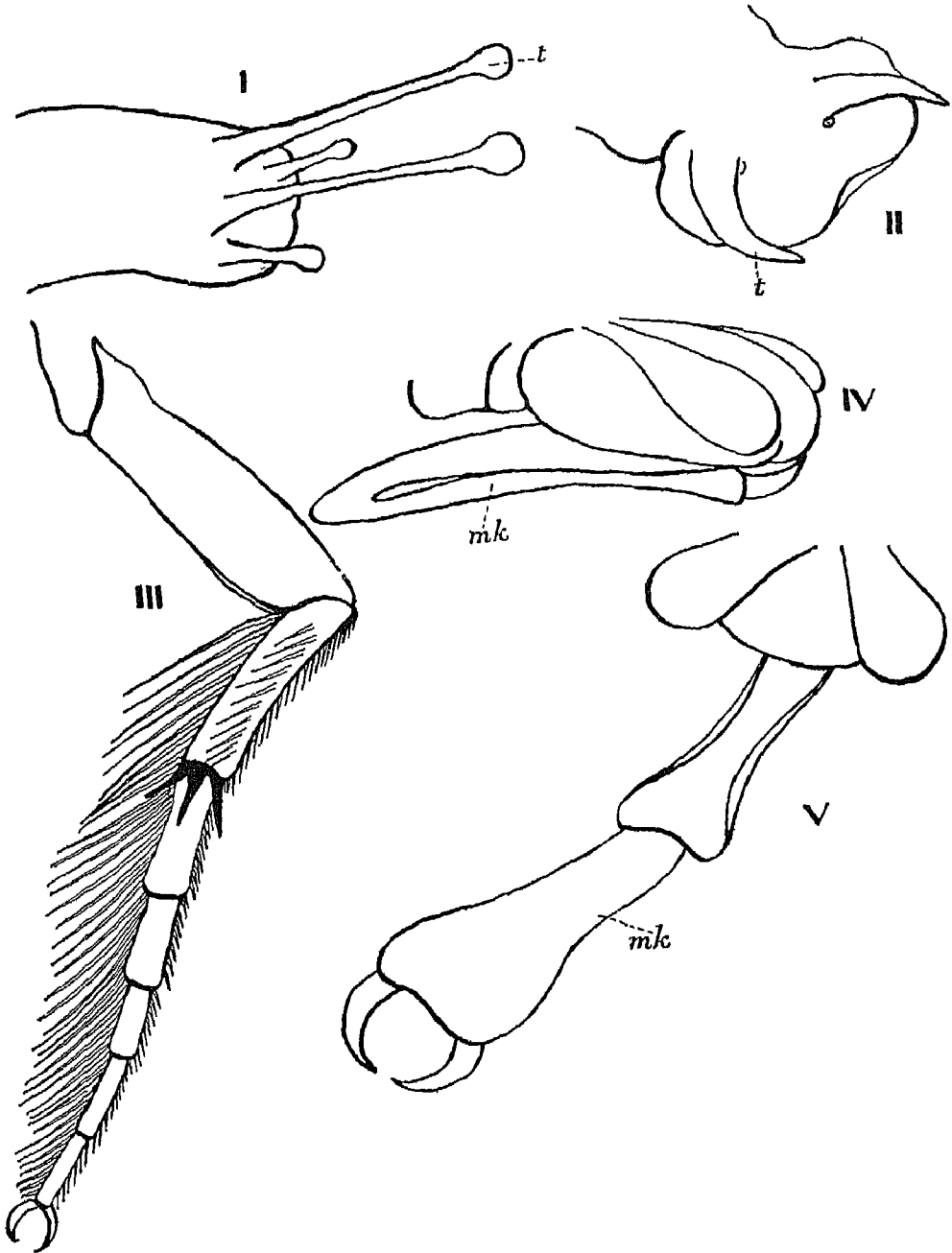
XVI. DRAGON FLIES

AIM.—To study the habits of the larvae, and to watch the development and emergence of the adult insect.

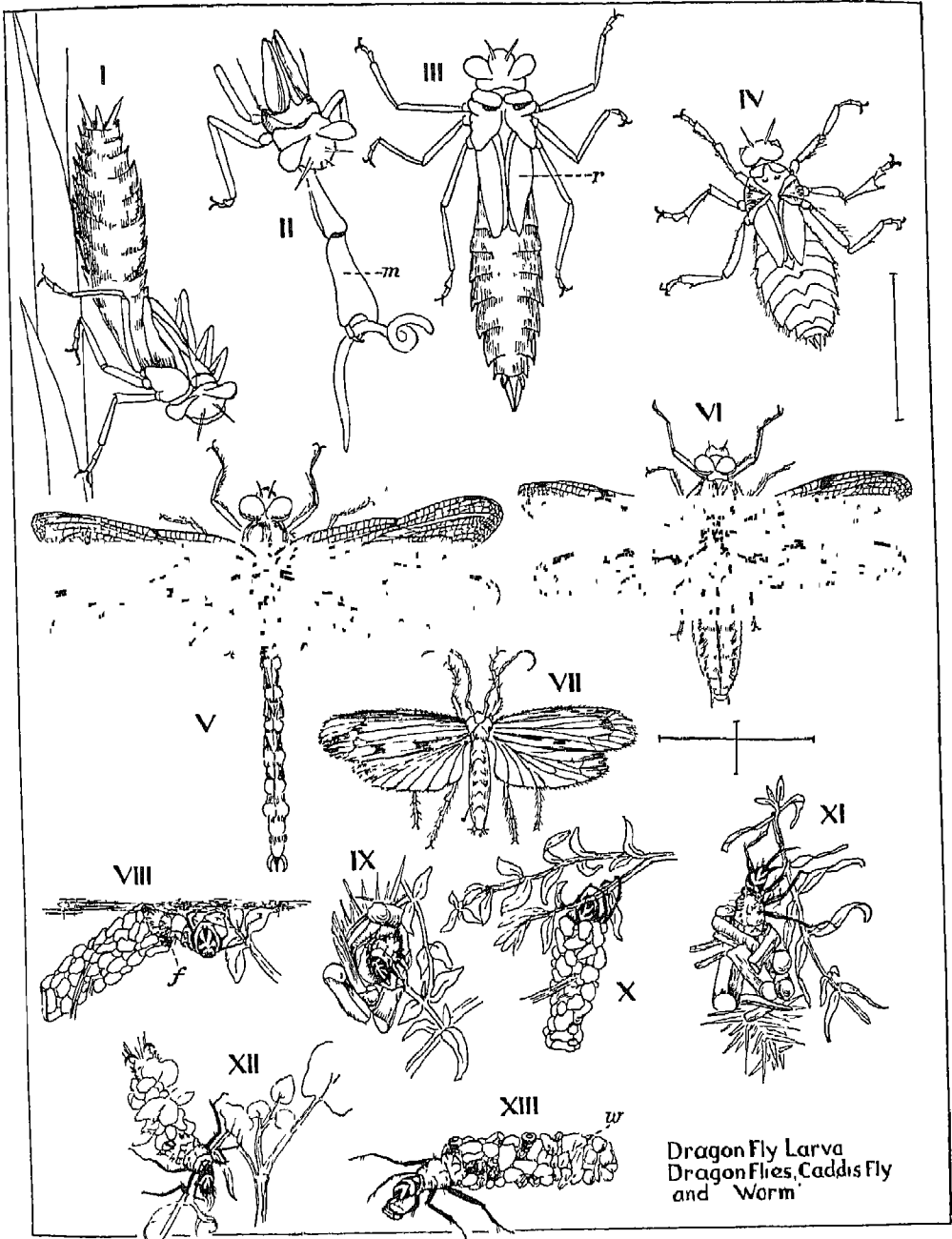
Material.—The green larvae of the Demoiselle dragon flies, which are plentiful in most ponds. One or two larvae of the great Blue Dragon fly (known popularly as the "Horse stinger"). These can be obtained from a dealer if they do not occur locally.

The study.—A group of children might have two or three of the small green larvae in a dish. If a large one is available, it can be housed in a glass jam jar. Weed should be provided for shelter and for the insects to hold on to. The weed, too, helps to aerate the water.

The children should watch the movements and try to draw the larvae in characteristic positions. They should also be on the alert for the casting of the skin, when the body assumes a much brighter colour, especially in the large larvae. They should notice whether the insect has to cling to weeds in order to remain at the bottom, and whether it ever comes to the surface and projects any part of the body. They will find in this case also that the larva does not project the body; it is therefore fair to assume that it is in some way capable of breathing under water. In the Demoiselle larvae, the three thin, narrow plates projecting from the end of the body are able to breathe, i.e. to take dissolved oxygen out of the water. In the case of the large larvae, water is sucked into the end of the food tube, and then forcibly expelled, and from this water the walls of the food canal are able to extract oxygen, giving up carbon dioxide. It is sufficient to tell the children that the larvae breathe through the end of the body, and that in the Demoiselle, the three leaflike plates are connected with breathing.

The Demoiselle larvae will be recognised when they are captured amongst weeds, by their green or brownish-green, nearly transparent body, long and narrow, with a hammer-shaped head and large eyes. They wriggle in the net and usually suggest to the children the idea of shrimps, but as soon as they are put into water and dart away, it will be seen that they are insects. They swim by curving the body vigorously from side to side. They vary from ¾ in. to about 1 in. long, and the larger ones will be seen to have two pairs of small wings already developing. The body is divided into seg-

PLATE XI

SKETCHES FOR THE BLACKBOARD

GARDEN SNAIL (Helix) I. Head with tentacles extended (*t*)
COMMON POND SNAIL (Limnaea stagnalis) II Head of snail, *t*, tentacles
DYTISCUS. III Hind leg used for swimming.
DRAGON FLY (Aeschnidae) IV. Head showing mask folded (*mk*). V Head with mask extended (*mk*)

DRAGON FLY LARVA I Full grown larva of Aeschna (nat. size) awaiting prey II Capture of prey, mask extended (*m*). III Full grown larva of Aeschna *r*, rudiments of two pairs of wings IV Larva of Libellula (line to right shows nat size)

DRAGON FLIES V Dragon Fly—Aeschna—male VI Dragon Fly—Libellula

CADDIS FLY VII Caddis Fly (line to right shows nat size)

CADDISWORM VIII Under surface of the water, breathing *f*, filaments for respiration IX Feeding X Clinging to weeds XI Crawling over weeds XII Constructing a case of bits of leaves XIII "Worm" and completed case of stones, beads and bits of watercress (*w*)

ments and has three pairs of short, weak legs. At the end of the abdomen are the three projecting breathing leaflets already described. They are pretty, delicate-looking creatures, but their habits are voracious They lurk amongst the weeds, sometimes stalking their prey, sometimes waiting until it is within jaw's length, for they have a peculiar extensible jaw which can be stretched out to almost half the length of the body. This is known as a *mask*, for when folded it completely covers the under side of the head and part of the thorax. It is hinged to the mouth and has another hinge or joint, so that the first part can be bent backwards under the body, and the second joint can be bent forwards on that again. This second joint is broad in front and bears a pair of pincerlike jaws As the victim comes within reach the apparatus is shot forward, the jaws open and suddenly close upon it. At the same time the mask is retracted, bringing the prey close to the mouth, where it is torn up and pushed in.

The large larva may be 1½ or 2½ in. long, and as thick as a child's finger. It is a dark, muddy colour, except just after shedding its skin, when it is a bright, translucent green. It stalks with slow, stealthy movements, or clings lurking amongst the weeds. In captivity it will eat eight or more tadpoles a day (throwing away the crumpled skins), and seems always ready for small worms. It grows, like the small larvae, by casting the skin, and then expanding while the new skin is still soft It can be seen to draw the last segments of the abdomen in and out regularly, while at rest, and this is a definite breathing movement; in reality it is drawing in water Sometimes, if the larva is taken out and then put back into a dish of water, it squirts a distinct jet of water from the end of the body, making a little waterspout.

There is no definite pupal stage in the Dragon flies, but the wings gradually develop and internal changes take place. When the large larva is ready to change into the fly, the eyes become brighter. In the case of the small larvae, the body seems to become more opaque and solid-looking, and then the larvae are seen to be climbing up twigs out of the water Twigs or reeds must always be fixed steadily in the dish, so that the larvae can climb out.

In both cases the skin splits down the back of the thorax, the body inside swells and widens the crack, which extends further, allowing the head and wings to be freed. Then the legs are drawn out by strong movements of the parts already free, and finally by holding on to the old skin with the legs, the abdomen is curved away from it and drawn out; *cf.* the emergence of a seedling stem. The larva stretches the abdomen and curves it away from the old skin.

But the body is still compressed and the wings crumpled In a short time the wings can be seen to expand, and they begin to attain their iridescent colouring. The body and wings still take some time to harden, and it is probable that a pumping of liquid takes place to distend and shape the wings and abdomen, and that later this liquid dries up. Liquid has been observed dropping away from the abdomen as it gradually gets thinner The whole process takes about three hours in the large Dragon fly, a shorter time in the small ones. Towards the end of this time the abdomen assumes its brilliant colouring, but it has frequently been observed, at any rate with the small Dragon flies, that if the change takes place indoors, in limited light, they do not attain their full depth or brilliance of colour

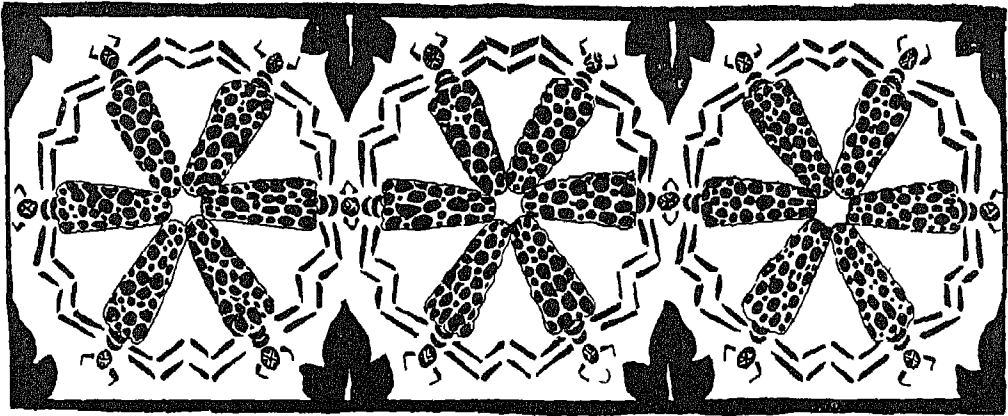
The colour of the Demoiselles is a deep azure, with iridescent wings shot with purple and green The large Dragon fly is a deep, dark greenish blue, with bronze and gold lights in the sun, yellow spots on each side of the abdomen in the female and green in the male. The eyes are a deep greenish blue. It is curious to see the flies resting for a long time, especially as the light fails, apparently asleep but with wide-open, staring eyes. They feed on the wing like swallows or hawks, with a swift, strong flight. The two pairs of wings are long and

narrow, presenting a long cutting edge to the air.

The small Demoiselles dart lightly but with equal purpose, over the ponds, coming to rest on reeds, sometimes hovering over the water as if suspended there, for in strong light the transparent wings are often difficult to see. The eggs are dropped into the water as the insects hover over it.

There are many other British Dragon flies, one a deep ruby colour, about an inch long (its Greek scientific name, *Pyrosoma*, means "fire-body").

A larva that occurs fairly often is a curious short, thick-bodied creature about an inch long, very broad, dull, muddy greenish-brown in colour, and often covered with particles of mud. Very short threadlike weeds may be growing on it. These foreign bodies serve to conceal it still further from its victims. It has the characteristic mask, otherwise it might not be recognised as a relation of the others. This larva turns into a rather thickset Dragon fly with less brilliant and attractive colouring, and with proportionately shorter wings than the others described It will be noticed that the larvae of both the Dragon fly and the Beetle, owing to their shape and colouring, are difficult to discern amongst the stems and narrow leaves of the water weeds.

XVII. CADDISWORMS

EVERYBODY knows the quaint little creatures called Caddisworms that carry their homes about with them, and utilise many kinds of materials to construct them. They are distant relations of the Dragon flies, for they are not worms at all, but the larvae of four-winged flies, which may be seen from May onwards resting amongst the grass and rushes, or often swept away on the current of small streams into which they have fallen after having laid their eggs. They are frail greyish, dull-looking flies, about 1 to $1\frac{1}{2}$ in across the wings, with long, delicate antennae, thin legs, a thin body and transparent wings

The larvae of each kind, for they are very numerous, choose their own type of material for their tubes or cases, and different species are found in running water and in stagnant ponds A few sweeps of the net will be almost sure to secure some of them; they may be narrow tubes of sand, $\frac{1}{2}$ in to $\frac{3}{4}$ in long,

or they may be broad and irregular in shape, with small stones and shells stuck all over them, or with short lengths of stalks and bits of green leaves clipped off by the sharp little jaws. Some of the larvae make their case of two oval pieces of leaf stuck together, so that it is quite flat. Others make a raft by sticking on two or three pieces of twig much longer than the tube. In the net they will show no sign of life, though on looking into the case the insect can be seen withdrawn inside it, but almost as soon as they are put into water, a small, dark, horny head will peer over the edge, then a bunch of claws will emerge, and finally, three pairs of legs will project fully and the creature will begin either to swim or crawl. The small kind of Caddisworm which makes a mud tube will swim actively, carrying its shell horizontally, and may be seen to chase such things as very young May-fly larvae, "blood worms" and other soft creatures.

The best way to keep Caddisworms is in a saucer or shallow bowl with a little of the pond mud and some floating weed. They live chiefly upon the vegetation and upon very minute animals found in the mud or on the surfaces of the weed, so that these will need renewing from time to time.

The study.—Let the children have a saucer containing several Caddisworms, preferably of different kinds Let them watch and notice how the Caddisworms move, and how rapidly they withdraw if touched The children can see the horny head and three pairs of legs, the first pair very short.

Notice that after feeding for some days, the Caddisworms withdraw into their cases and do not again emerge. If the case is then closely examined, without being disturbed, it will be found that the insect has anchored it to a weed, or to the saucer, by fine, tough threads It has also closed the opening of the tube where the head emerged, or perhaps both ends, by a sort of fine grating of thread, or by a bit of leaf. When this occurs the Caddisworm has passed into the pupal stage, and the adult fly will soon appear Provide some little twigs for the fly to cling to, or it may fall into the water and be drowned The eggs are laid on weeds in a loop of jelly, something like those of the snail, but not glued down along their length.

The teacher might extract three or four larvae from their cases by gently prodding them from the back with a bristle, or a small pinhead, when they will leave the cases Let the children see that they are soft-bodied, being protected from their enemies by the case The body is jointed, and provided with tufts of white threads, by means of which they breathe,—for they are able to take oxygen from the water. A current of water constantly sweeps through the tube (which, it will be noticed, is open at both ends), and the dissolved air is used for breathing

A little behind the head (on the fourth segment, or first abdominal segment) are three little knobs, which are pressed against the tube to keep the Caddisworm in place On the last segment are two tiny hooks, by which it is also hooked in.

Now put a variety of material into a saucer—a little fine sandy mud, some leaves, some water weeds with stalks, a little very fine gravel—and put the larvae into it. Place this on the Nature Table and let the children have the opportunity of looking at it from time to time The larvae will soon begin to select material, bite off the sizes they require, and make themselves new cases, which they stick on the body with their jaws.

Experimental work.—In the case of all these larvae, it is possible to test by very simple means their responses to light, sound, vibration and touch. Part of the home in which they are kept can be darkened, and they can be watched to see if they prefer a light or a dark place A flashlight can be used The dish can be tapped. Noises can be made near it,—clapping, ringing a bell, blowing a whistle They can be gently touched with a fine paint brush. The hand

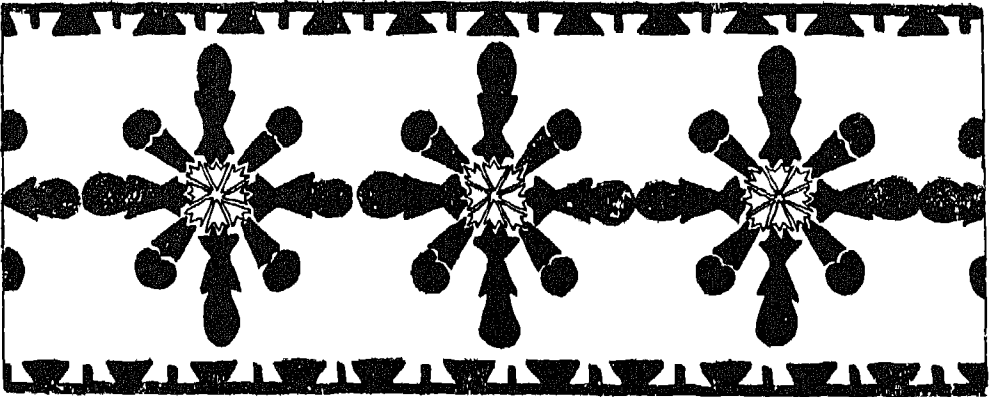
can be suddenly extended over the dish. In each case the response can be noticed. It is probable that the larvae of the Beetle and Dragon fly find their food chiefly by smell, but they seem to see any creature which comes close to them and to distinguish between light and darkness. All respond very quickly if touched

Class summary—It is well to be sure that the children have really understood what they have seen When each group in turn has been able to observe the larvae of the Dragon fly and Water Beetle, and the Caddisworms, it is desirable to devote one period to getting from the class an account of all they have seen, then any further explanations which seem necessary might be given by the teacher, and some of the problems of a pond might be considered. It is a good plan to put the account together under definite headings, and finally to make a tabulated blackboard summary The following may be a guide.

	Great Water Beetle	*Beetle Larva*	*Dragon Fly Larva*	*Caddisworm*
1 Movement.	Rows by means of 3rd pair of legs, which are like oars.	Jerks the body violently to swim. Often crawls along stalks of weeds.	Demoiselle wriggles from side to side. Great larva jerks the body and pumps water in and out of the end of it.	Crawls on the bottom or swims.
2. Posture.	Tilts the body and balances with "oars".	Head downwards, with body curved and "tail" up.	Lurks amongst weeds, clinging with legs, or lies in mud.	Lies on the bottom in mud or clings to weeds.
3 Feeding.	Worms, tadpoles. Holds prey with front legs and tears with jaws.	Worms, tadpoles Pierces prey with sicklelike jaws and sucks them.	Worms, tadpoles, soft insects. Shoots out mask, and catches prey in jaws, then bites and tears them up.	Weeds and very tiny animals
4 Breathing	Comes to surface. Tilts end of body out of water and takes air under wings, then into breathing holes there.	Comes to surface. Presses two styles against film and pushes end of body out, which sucks in air.	Breathes under water by tail plates (gills). Large one takes water into end of body and can get air from it.	Breathes under water. Has threads inside case which can take in air from water.
5. Growth.		Sheds skin.	Sheds skin.	Sheds skin. Makes a new case when old one is too small.

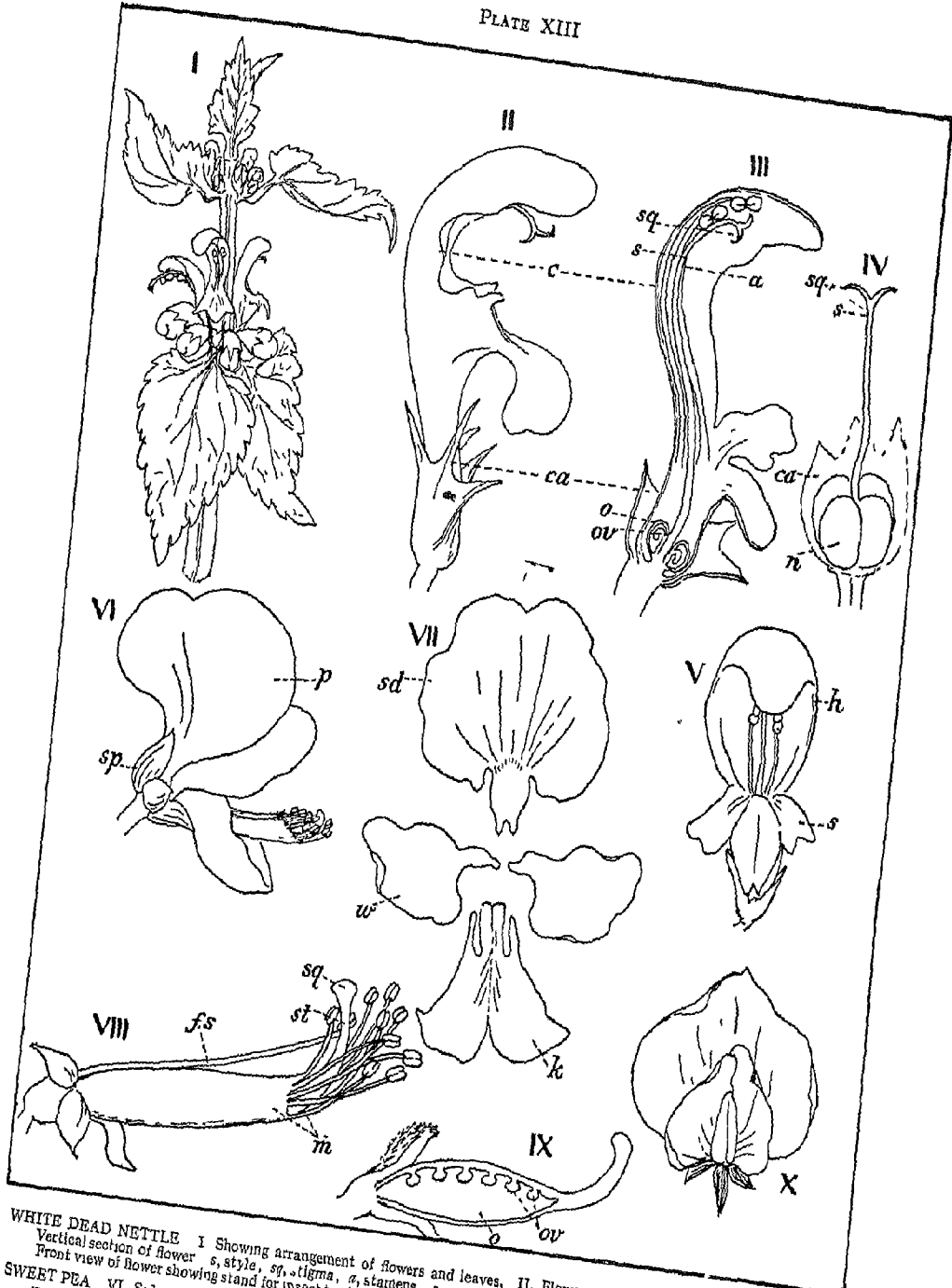
	Great Water Beetle	*Beetle Larva*	*Dragon Fly Larva*	*Caddisworm*
6 What it becomes		A Water Beetle It *can* fly but does not often, except if pond dries up.	A Dragon fly with four wings	A Caddis fly with four wings.

The teacher who wishes to carry the study of water creatures further would find *Aquatic Insects*, by Miall, invaluable *Life in Ponds and Streams*, by Furneaux, is very helpful in identifying animals, and has some coloured plates *Pond Problems*, by Unwin, is full of suggestions for children's work, and for the children's own shelf. *The Pond I Know* in the same series as *The Hedge I Know* is useful.

XVIII. WHITE DEAD NETTLE

POINTS FOR THE TEACHER'S CONSIDERATION

THE White Dead Nettle, and indeed all the members of the Labiate family (i.e. the flowers with a "lip") to which it belongs, are highly specialised for the visits of insects. Instead of the simple circular arrangement, or *radial symmetry* of the cup-shaped Lime, Celandine or tubular Bluebell, we have here an elaborate joined tube, with the petals drawn out into curious shapes which serve to attract insects by their conspicuousness, to protect the pollen from wind or rain, and to provide a platform on which insects can alight. Since it would only be possible to divide the flowers into two equal halves through a medium plane passing through the back and front of the flower, this arrangement is called *bilateral symmetry*.

It will be seen that the flowers attract attention in two ways; (1) by the large number of flowers borne together on one stalk, and (2) by the circular arrangement of the flowers at each node, so placed that the white hoods radiate from the centre and form

PLATE XIII

WHITE DEAD NETTLE I Showing arrangement of flowers and leaves. II. Flower, side view *c*, corolla, *ca*, calyx III Vertical section of flower *s*, style, *sq*, stigma, *a*, stamens, *o*, ovary, *ov*, ovule IV Nutlets (*n*), *ca*, persistent calyx. V. Front view of flower showing stand for insect to alight upon (*s*) *h*, hood

SWEET PEA VI Side view of flower to show arrangement of sepals (*sp*) and petals (*p*) VII Petals separated *sd*, standard, *w*, wings, *k*, keel VIII Petals removed showing free stamen (*fs*) *m*, joined stamens, *st*, style, *sq*, stigma IX Vertical section of ovary (*o*), *ov*, ovules X Front view of flower.

a conspicuous ring. On examining these apparent circles closely, it will be seen that there are two distinct groups, each consisting of a central flower which is the oldest of the cluster, and paired flowers on either side,—the oldest on the outside, the youngest underneath, and the intermediate one nearest to the central flower. Seven is the usual number in each cluster. Thus there is a long flowering period, successive flowers opening while others are already forming seeds. Each corolla is held by a tubular calyx with five sharp points representing the sepals which have united to form it. The calyces from which the corolla has fallen will be seen to contain four round nutlets; these are at first green, afterwards turning black.

If the study of the flower is made in May, there is an opportunity of observing both the vigorous vegetative growth, and the long time of flowering It will often be found that in sheltered places (and Dead Nettles usually grow on sheltered banks or at the foot) there is a second autumnal flowering period, while the related Red Dead Nettle and Henbit can be found in flower almost all the year round in open waste places and neglected gardens.

THE LESSON

Aim.—To study the life and habits of the White Dead Nettle, and especially its flower.

Material.—An inflorescence for each child, or one between two A plant

Introduction.—If possible take the children out to see a bed of the plants in flower. Stop them some distance away, draw attention to the plants, and ask what it is that makes them notice the flowers. (The white colour; the flowers massed together, the tops of the flowers, or "hoods".) In the same way insects might notice them from a distance. At close quarters notice the free, luxuriant growth of the plants, and the general character of the inflorescence, with the youngest clusters at the top, and each cluster having flowers of different ages. Look for fruits (nutlets: the children will probably call them seeds, but actually there is a hard pericarp). Look for seedlings. If there is any cleared ground near, e g a garden bed, they are almost certain to be present in considerable numbers. They have large smooth cotyledons and less pointed leaves than the mature plant.

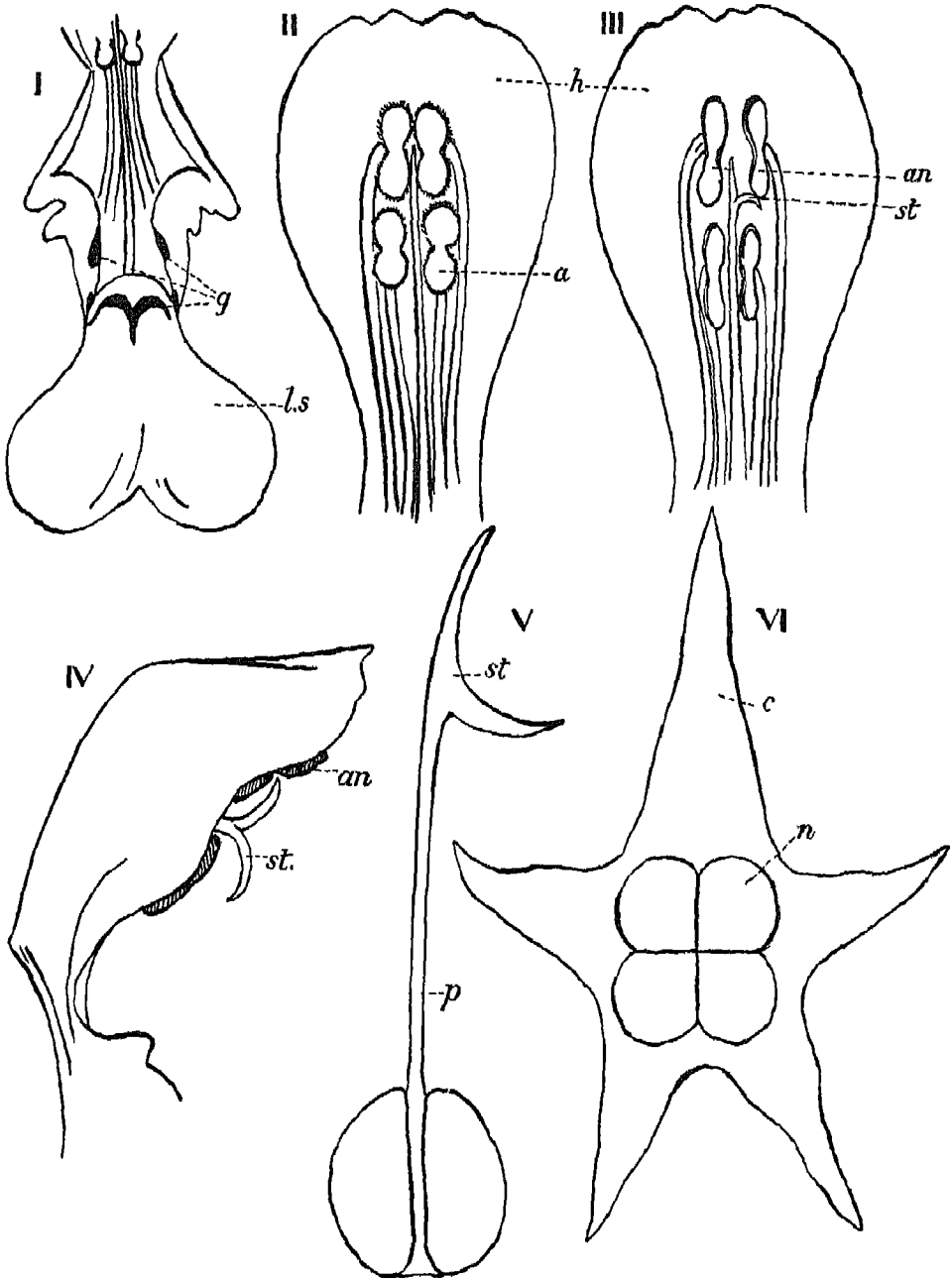
Notice the arrangement of the leaves in pairs, each pair at right angles to the next (*decussate*), which allows a good deal of light to reach the lower parts of the plant and does not hide the flowers.

I. Returning to the classroom, show the children the whole plant, and get them to realise that the creeping stem and the large number of seedlings together explain why such large colonies are formed.

Turning to the inflorescence, let the children examine and describe the arrangement, realising that the succession of flowers in different stages will help to make sure of cross-pollination.

Pollination Let the children look for the stamens. Look at flowers of different ages. They will notice that there are four stamens, with the anthers pressed tightly together under the hood. They are black, with yellow pollen, and as they are all open this shows as a yellow streak on the under side of each In the older flowers the edges will be seen to have contracted The stigma projects between them, but as it is white the children probably will not see it.

They will notice how well the stamens are protected by the hood, and that the front part of the flower, which is deeply lobed, forms a platform to which a bee can cling as it pushes into the flower. At the bottom of the flower is nectar. If hand lenses are available, the children will be able to see several light-brown spots on the platform and at the sides of it, leading into the flower tube. These are supposed to serve as honey guides. These are bee flowers, and the tube prevents other insects from reaching the nectar. By pushing a pencil into the flower

PLATE XIV

SKETCHES FOR THE BLACKBOARD

WHITE DEAD NETTLE I To show landing stage (*l s*) and guiding spots (*g*) II Hood (*h*) showing stamens with open anthers (*a*) III Hood showing anthers empty and contracted (*an*), *st*, stigma IV Side view of III *an*, anthers, *st*, forked stigma V Pistil (*p*) with forked stigma (*st*) VI Calyx (*c*) with four nutlets (*n*).

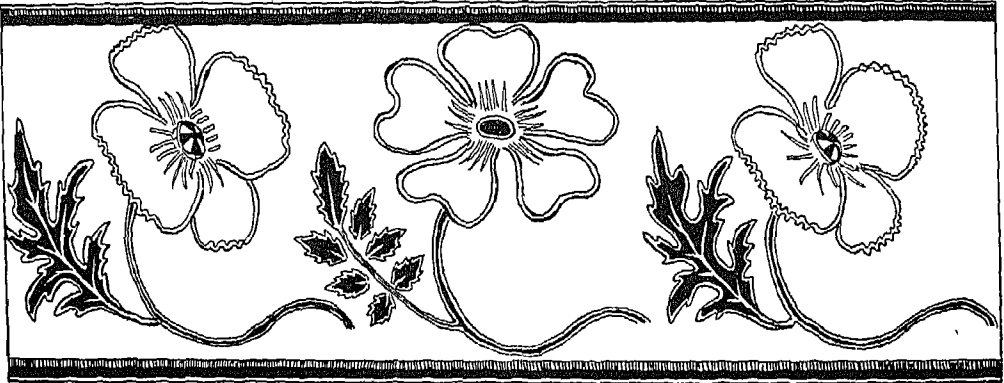
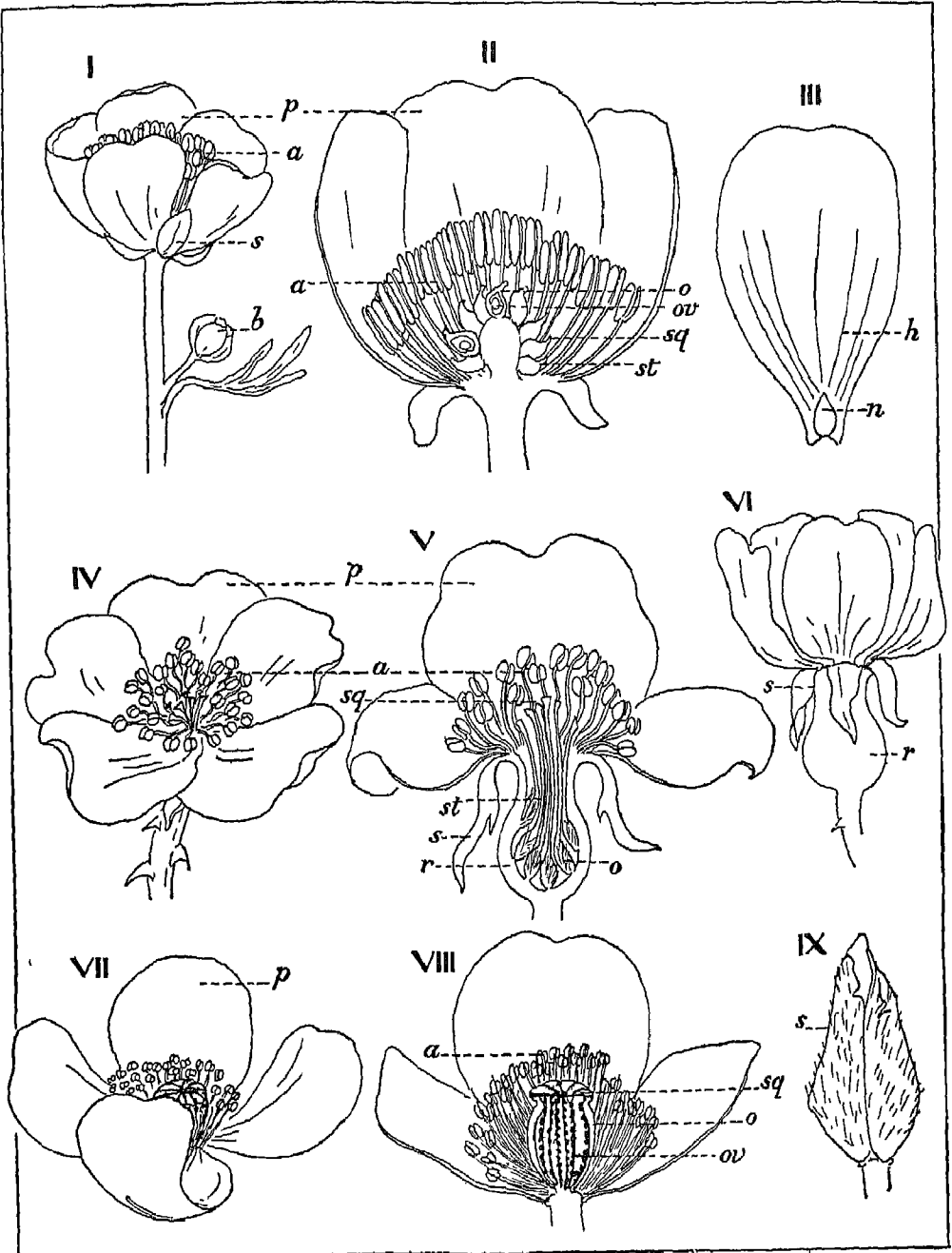
and seeing how the stamens touch it, the children can see that as the bee pushes its tongue into the flower, its back and head will receive the pollen, which falls *downwards* as the stamens open this way The bee may then brush on to the stigma of another flower. The stamens are attached to the hood by their stalks just where the tube begins.

The rest of the process can be described with the help of the blackboard diagrams provided With a lens the children may be able to see the forked stigma between the stamens, but not otherwise. Until the stamens have shed their pollen, the long style, coming up from the bottom of the tube, and the forked stigma, are pressed against the hood behind the anthers. The shrinkage of the empty anthers allows the stigma to project, one prong pointing towards the tip of the hood and the other downwards, so that a bee is sure to brush against them on entering, if they are ready to receive pollen. By turning back the hood of one flower, and gently pressing back the anthers, the stigma and style may be plainly seen. The stigma passes down between the carpels to the base of the ovary It falls off, with the corolla and stamens, soon after the ovules begin to grow into seeds

II. Let the children make a series of enlarged sketches:

(1) Of a side view of the flower to show the hood, landing stage, tube of the flower, and calyx
(2) Looking upwards into the hood, to show the stamens (anthers).
(3) Of the landing stage from the front.
(4) Of a calyx from the top, containing the four ripe nutlets

III. *Further work* Seeds could easily be grown in a pot or box of soil.

XIX. POPPY AND WILD ROSE

As several cup-shaped flowers have already been studied carefully, the children realise that they are open to all insect comers, depending for pollination on the probability that some of their many visitors will go to other flowers of the same kind, whether these visitors are bees, flies or butterflies. They will realise, too, that the flowers provide chiefly pollen. This is used as food directly, and for making "bee-bread" to provide food for bee larvae. The method of study has already been fully

BUTTERCUP I Flower, side view *p*, petals, *s*, sepals, *a*, stamens, *b*, flower bud II Vertical section of flower *st*, styles, *sq*, stigmas, *o*, ovary, *ov*, ovule III Petal *n*, nectary, *h*, honey guides

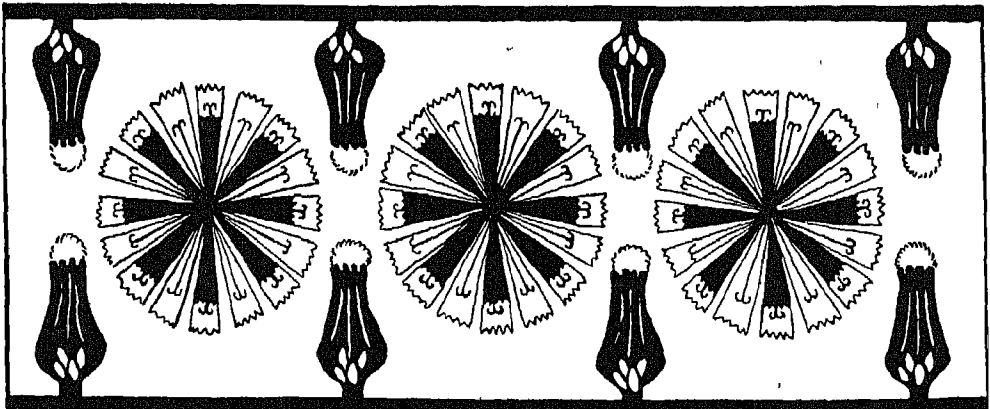
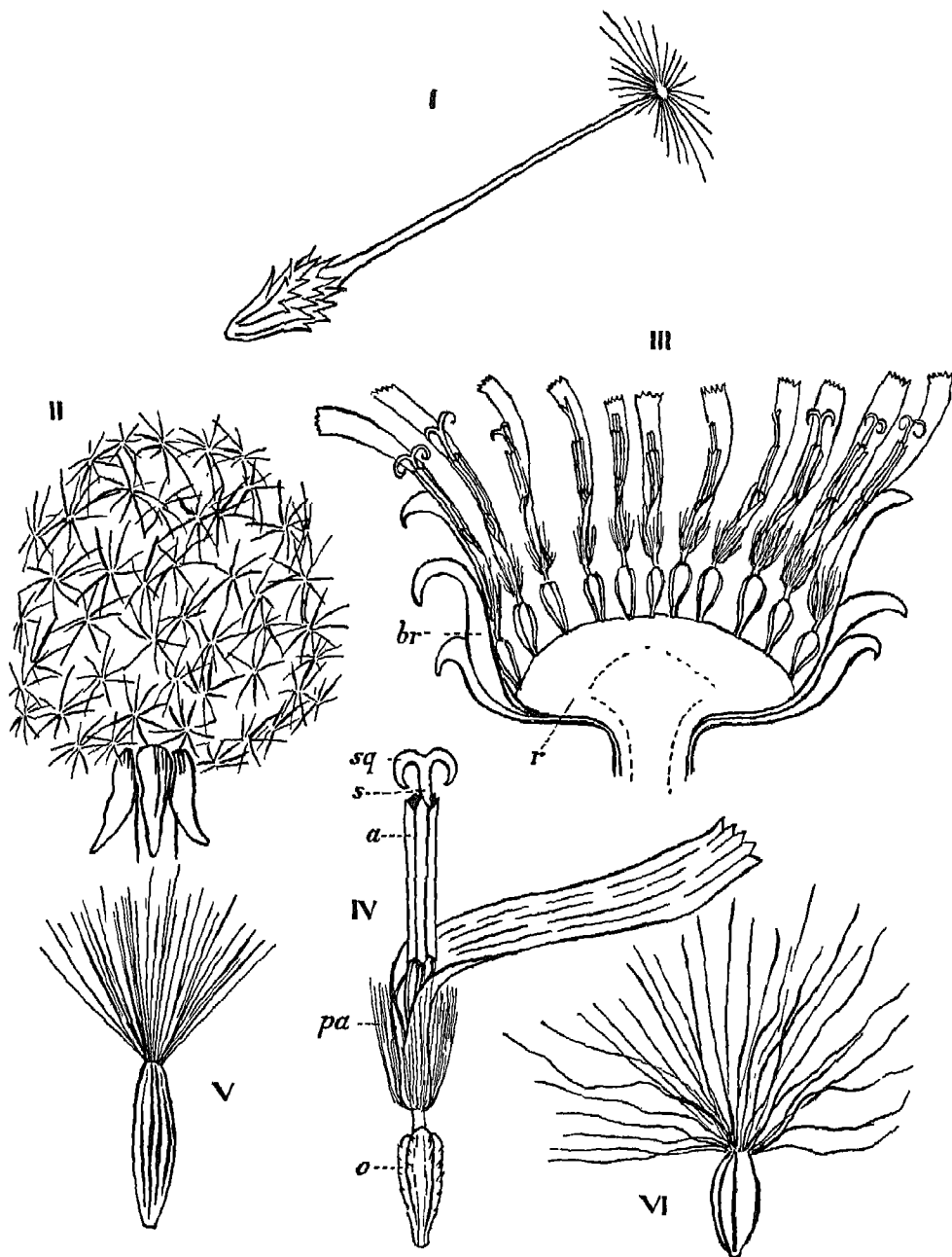
WILD ROSE IV Flower, front view. V Vertical section of flower. *p*, petals, *s*, sepals, *a*, stamens; *st*, styles, *sq*, stigmas, *o* ovary, *r*, receptacle VI Flower, side view.

POPPY VII Flower, front view. *p*, petals. VIII Vertical section of flower *a*, stamens, *sq*, stigmas, *o*, ovary; *ov*, ovules IX Flower bud *s*, sepals

indicated: the children would try to watch insects visiting the flowers, they would look out for movements of stamens, or movements of petals and sepals in the opening and closing of the flowers, or for movements of the flower stalk after pollination is effected They would also follow the ripening of the seeds, both from flowers kept in the classroom, and out-of-doors

The Poppy.—Possibly the strong, heavy smell attracts flies Certainly many little flies can be seen in the flowers There are numerous stamens—note the positions of these in young and old flowers. The ovary is curious in having a number of radiating ridges, five to fifteen, passing from the centre to the edge These are the stigmatic surfaces. They are seen to be rough, which helps to hold the pollen The structure of the ovary has previously been described The flower attracts chiefly by its large, brightly coloured petals. The calyx falls away as the flowers open, the petals and stamens fall soon after pollination

The Wild Rose.—The calyx, corolla and stamens are all borne on the rim of the deeply-hollowed receptacle, which, as already described, encloses the ovary of many separate carpels. There are several stigmas to receive pollen The strong, sweet smell suggests the presence of nectar as well as pollen, but it is a false scent, for there is no such gift However, there is a plentiful supply of pollen to reward the insect visitor. In addition to the formation of seeds, the plant can also increase its colony by creeping underground stems, which produce buds from which new plants grow

XX. DANDELION AND GROUNDSEL FLOWERS

THESE may be examined as examples of many small flowers being crowded together to attract insects, without going into details of structure. It can be seen that they are made up of a number of tiny tubes ending in a large strap-shaped process. Each of these is a flower, and the mass together makes an attractive head which can be easily seen. It also saves an insect's time, and makes far more visits

SKETCHES FOR THE BLACKBOARD

DANDELION I Single fruit of Dandelion II Collection of fruits in head III Section through head, showing arrangement of florets *br*, bracts, *r*, receptacle. IV Single floret *sq*, stigma, *s*, style, *a*, stamens, *pa*, pappus of hairs, *o*, ovary

GROUNDSEL. V Single fruit of Groundsel

THISTLE. VI Single fruit of Thistle

possible Watch a bee on a Dandelion flower. It will be seen to go hurriedly round to all the florets that are ready for it, visiting a large number.

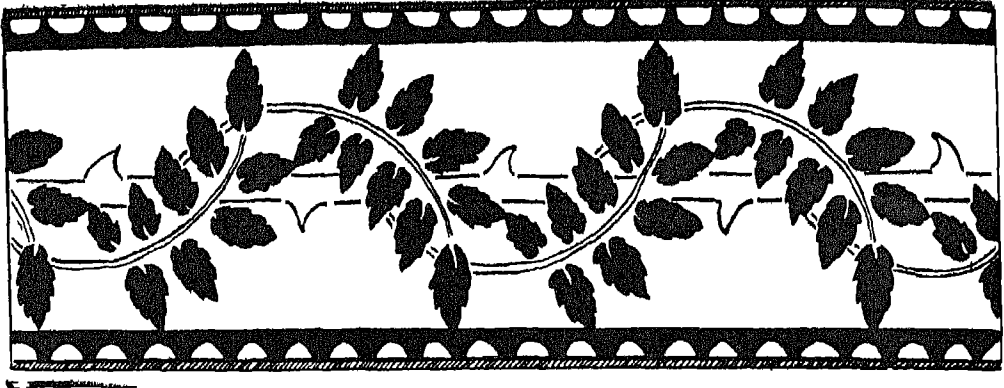
Let children notice the different movements of the flowers and their stalks,—the "sleep" movements which take place not only at night, but on dull days when there is no sun, and the closing of the flower while the fruits ripen, and while the stalk at the same time lies flat on the ground. When the tiny fruits are ripe, the stalk rises up again, the head expands, and each tiny parachute unfolds, to bear away the nutlet (with the seed inside it) as soon as a slight puff of wind loosens it.

The Groundsel flower head is too small to be of much interest to children, but the ripening fruits should be watched in detail and compared with those of the Dandelion. Note that in the Dandelion the nutlet is suspended at the end of a long stalk, while in the Groundsel (and Thistles) it is directly attached to the spreading plumes The silky plume is called a *pappus*, and is in all these cases developed from a reduced calyx. It will be noticed that the function of a calyx in protecting the bud is carried out by several rows of narrow leaf-like bracts which enclose the whole head of flowers. The pappuses of the Groundsel and Thistle soon drop their "seeds" and float away, but those of the Dandelion may carry the seeds for long distances.

The seedlings are easy to obtain and should be recognised by all gardeners Note the difference in form of the rosette of leaves in dry and in damp shady places, and the great height to which they can attain; on the other hand, on a regularly mown lawn they will flower half an inch above the soil. Cutting seems only to stimulate further growth and freer flowering; the closest blade cannot cut their central buds The long tap root is not only very difficult to eradicate, but reaches down to hidden supplies of water which keep it alive when other plants are dying of drought.

CLIMBERS

I WILD ROSE *r*, rose stem, *p*, prickles
II. SWEET PEA. *st*, stipule, *l*, leaflet, *t*, tendril (modified leaflet)
III RUNNER BEAN—young plant *s*, first foliage leaves, *t*, support, *st*, climbing stem

XXI. CLIMBING PLANTS: SWEET PEA, RUNNER BEAN, WILD ROSE

THE Sweet Pea and Runner Bean should be grown from seed, and their whole life history watched, though in all probability, if the ground indicated in this syllabus is covered, there will not be time for a detailed study in this year

The germination of these plants should be watched and recorded by diagrams at each stage, and compared with the germination of plants already studied. Different supports (rough and smooth sticks, metal skewers, etc.) may be provided for different plants, to determine which is the most serviceable. One plant may be left without support.

Revise the object of a climbing habit—to reach the best position for light and air in the hedge.

For method of study see treatment of climbing plants in Volume I, page 373

Points to be noticed.—

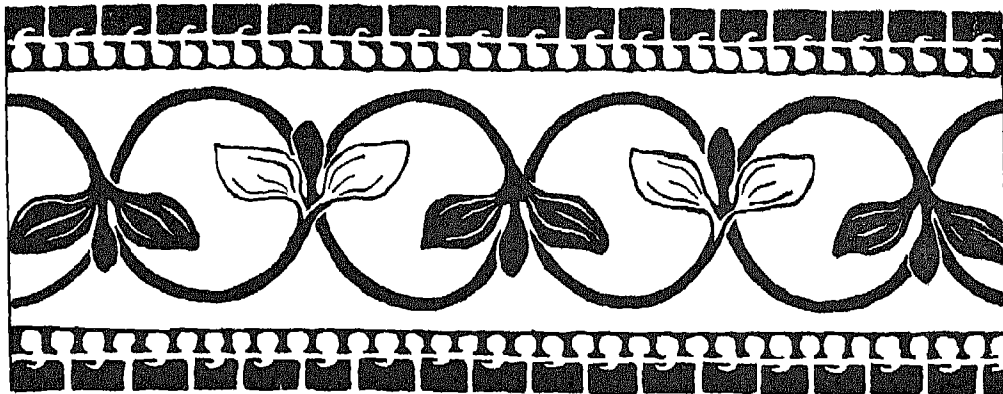
(1) At what stage the plants begin to need support

(2) The movements they make in trying to find support

(3) What part of the plant twines. In the case of the Sweet Pea, it is the leaves which form tendrils, in the Runner Bean it is the stems. The large outgrowths at the base of the leaf in a Garden Pea, the stipules, serve as leaves, while the fine upper leaflets lose their blade, and the veins chiefly are converted into tendrils In the Sweet Pea the one terminal leaflet only forms the tendril, and the stipules remain small.

(4) The Wild Rose is an example of the habit of climbing by means of thorns or prickles In addition to their use in this capacity, the prickles of the Wild Rose prevent browsing animals and slugs from feeding on the leaves

To complete the study of the Wild Rose, its climbing habits would be observed for comparison with the climbing of the Bramble, already studied. It would be carried out in the same way as the study of the Bramble. The Wild Rose has similar thorns or prickles, skin structures, but these are much stronger and larger than those of the Bramble. The stems are weak, and the curved thorns serve to uplift the leaves and blossoms high above the other plants in the hedge

XXII. GERMINATION OF SUNFLOWER, MUSTARD AND CRESS, BROAD BEAN

THIS study, which could take place in the early spring, would follow the lines already suggested for other seedlings, that is, the seeds would be grown in various ways and exact records kept These records drawn on squared paper would show the lengths of roots and stems at different stages, and a series of annotated and dated drawings would be made by each child

In addition, more stress might be laid on the experimental aspect The seeds might be grown in light and also in darkness, with a limited supply of water and with plenty of water, in warm and in cool places The effect of these differences would be recorded

Again, sketches might be made, and descriptions should be written

The structure of seeds, at any rate those of the Sunflower and Broad Bean, might receive more attention than in previous years.

The Sunflower " seed ".—In reality this is a fruit, as its hard pericarp is fused with the seed coat If possible keep a head of a Sunflower from a previous year, and show all the fruits growing in it, each surrounded by the shrivelled remains of a flower. Soak some seeds, and notice how they swell and become soft. A white root emerges and grows downwards for some time If the seed has been firmly fixed, a small white curved stem called the *hypocotyl* will appear, and this will drag out of the pericarp the two *cotyledons* or seed leaves Let the children open some soaked seeds which have not germinated and find these cotyledons The cotyledons turn green as they emerge from the skin, and so appear to be ordinary leaves, but really they contain a store of food for the young plant. It is some time before a minute bud can be detected between them This is the true main stem of the plant. It finally unfolds and produces true foliage leaves and eventually the big plant

The Broad Bean seeds should now be soaked and afterwards opened by splitting them carefully along the curved edge, avoiding the black scar, or *hilum*, which is where a short stalk joined it to the pod.

Before removing the skin, notice the impression made on it by the root inside. Keep the skin.

Examine the contents. The root will be noticed first. This primary root is called the *radicle* It is attached to two large cotyledons, which are white and contain a quantity of food for the young plant. Separate them gently. As they break apart, a yellowish bud will be seen lying between them, continuous with the root, but inside. This is the shoot, or *plumule*.

Now look at the skin or seed coat which has been taken off It will be found to consist of two layers—a thick, tough outer one, and a thin one. Look at the inside of the scar. At one end of it will be seen a tiny pocket into which the root fitted. How does the root get out of the seed coat? The water softens the skin. There is a little hole between the scar and the pocket, and the root pushes against this hole and so tears it until the hole is big enough for the root to get out. If a few soaked seeds that have been kept in water are now taken out, and the children are allowed to squeeze them while they look at the point indicated, they will see very small bubbles come out of it, showing where the hole is. The hole also helps to absorb water. (It is also the point where the pollen tube entered the ovule.)

Experiments.

(1) Grow a number of Scarlet Runner Beans in small pots. Support each by tying it to a short stick. Let them grow a few inches beyond the sticks, then substitute a long stick in one case. It will be found that the upper part begins to twine round the stick from left to right, or anti-clockwise. Support a second plant in the same way, but cut off the bud and about 1 in. of the tip of the stem. See what happens in this case. It is the region immediately behind the tip that responds to contact by twining round the stick. Take one of the plants which has a short stick, bend the upper part of the stem down, and leave it. It will be seen that the stem rights itself again by making a circular sweeping movement, and then grows upwards in a spiral. (According to Dr. Cavers, this usually takes about two hours. He also suggests using sticks of different thicknesses and placed at different angles.)

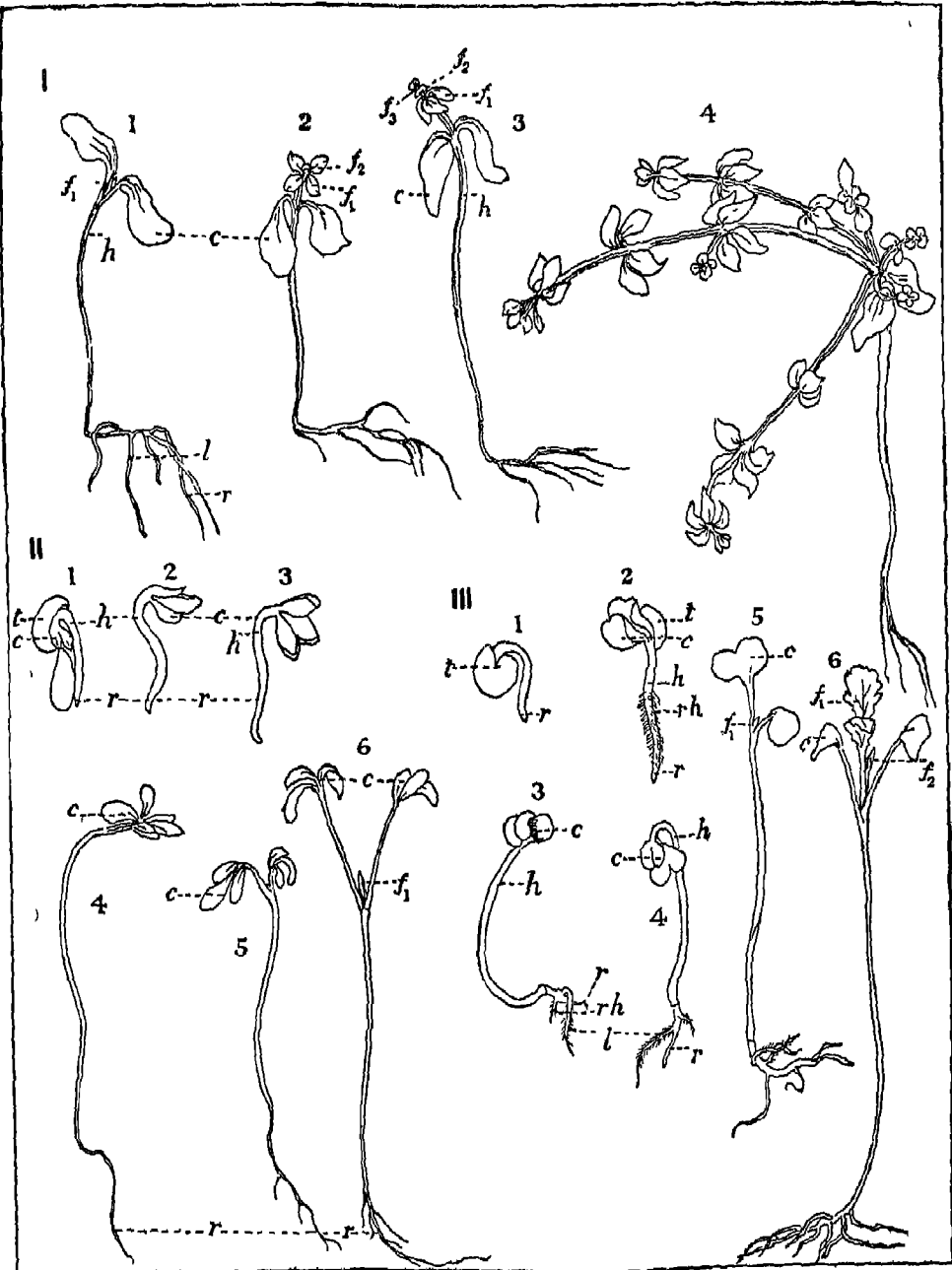
(2) Grow some Sweet Peas in pots When they are several inches high, and the tendrils are well developed on the younger leaves, notice that these tendrils have a small twist at the end. Rub that side of the tendril several times with a pencil It will be found that it soon begins to curve towards the side rubbed. If rubbed on the other side there is no response. Support one plant by tying it to a short stick, and notice the movements made by the tendrils. In another pot place a branched twig suitable for the tendrils to twine round, and watch how it occurs. Cut off the tips of the tendrils in another pot, and provide them also with a branched twig.

(3) Place some pots in the light and some in darkness to see whether the light affects the climbing in any way. It will be found that it does not, but that contact alone makes the tendrils or stems twist, though in both cases before they have touched anything, they perform spiral movements which help them to find a support.

(4) Carry out the same experiments on Scarlet Runners and Sweet Peas grown out of doors.

Point out to the children how the stem or tendril which has found a support tightens up and becomes very firm; also that when both ends of tendrils are fixed, there is a little "kink" in the middle, the upper half turns one way and the lower the opposite way.

By twisting a piece of string that is fixed at both ends the cause of this can be seen. If you try to twist it in one direction there must be a compensating opposite twist at the other end.

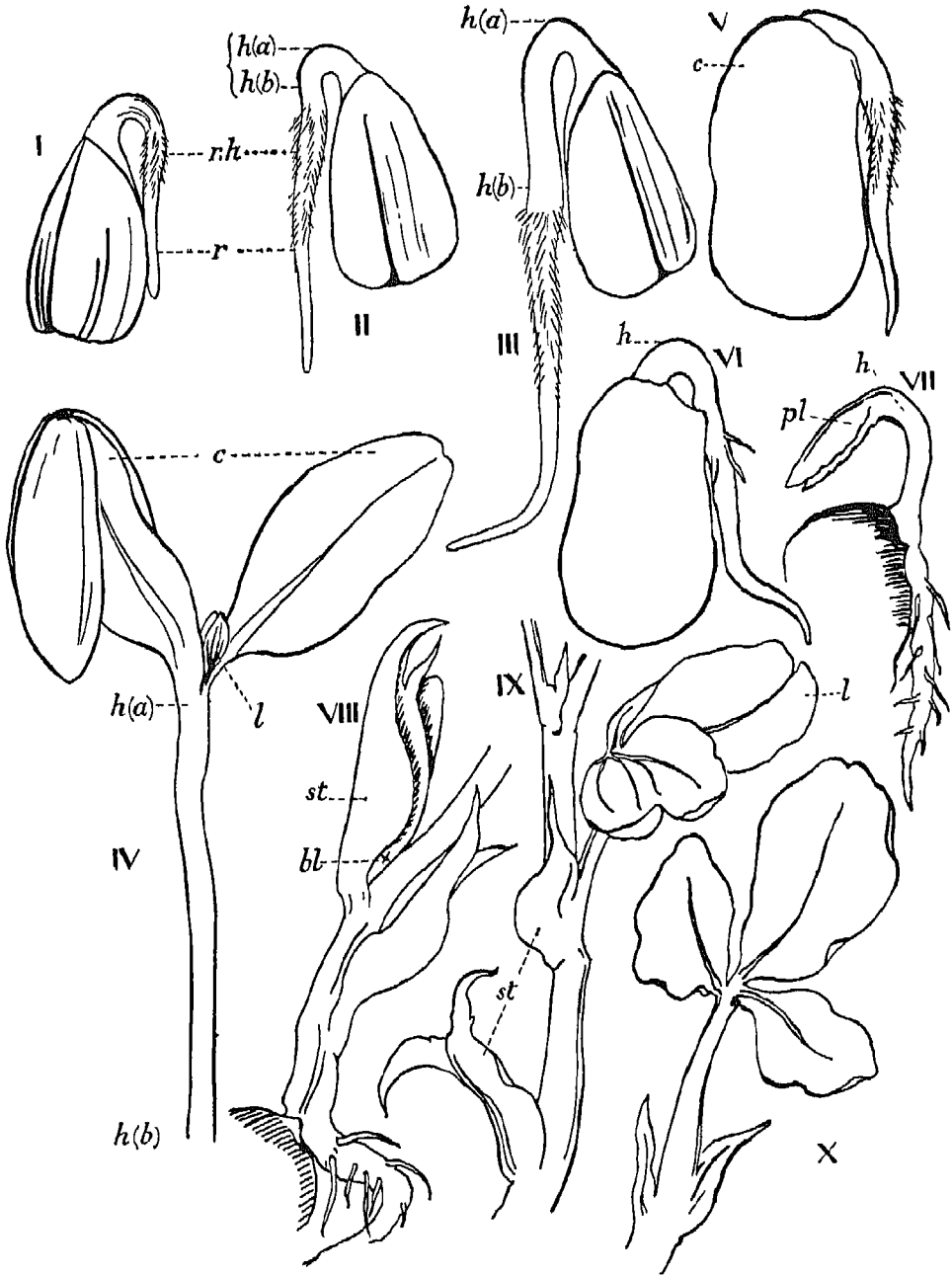
PLATE XVIII

I GOOSE GRASS SEEDLING 1 *c*, cotyledons, f_1, first foliage leaves; *h*, hypocotyl, *r*, radicle; *l*, lateral roots 2 and 3 f_1, first foliage leaves, f_2, second foliage leaves; f_3, third set of foliage leaves, *c*, cotyledons, *h*, hypocotyl 4 Seedling of several weeks' growth

II CRESS SEEDLING 1, 2 and 3 *t*, testa, *c*, cotyledons; *r*, radicle, *h*, hypocotyl 4, 5 and 6 *r*, radicle, *c*, cotyledons, f_1, first foliage leaves

III MUSTARD SEEDLING 1, 2, 3 and 4 *t*, testa; *r*, radicle, *c*, cotyledons; *h*, hypocotyl, *l*, lateral roots, *r h*, root hairs 5 and 6. *c*, cotyledons, f_1, first pair of foliage leaves, f_2, second pair of foliage leaves.

Germination.—When the bean seed germinates, the radicle comes out first and grows for some time If it is grown in a glass jar lined with blotting paper, not too wet, a soft furry mass of delicate white threads will appear just above the tip These are the *root hairs* whose work is to absorb water If they are injured, and the plant cannot quickly form more, it will die. This is true of all plants except water plants. Root hairs will be equally well seen on the Sunflower root grown in the same way Later on, small *lateral roots* (side roots) will branch from the main one.

But before this happens the plumule comes out, at first bending over as in so many other seedlings, then straightening out. The cotyledons, it is to be noticed, remain inside the seed coat and below the ground, as in the Horse Chestnut and Oak, whereas in the Sunflower and Mustard and Cress, they emerge, as in the Sycamore (In the Cress the cotyledons are deeply divided into three or more, and in the Mustard each is almost heart-shaped) As the bud of the plumule unfolds, its first leaves are seen to be very simple They indeed represent only leaf bases with slight lateral outgrowths (*stipules*) and the point in the middle alone represents the green blade which develops in the later leaves. Three leaves of this kind form, and then several leaves with two leaflets. Finally the fully-developed leaves have each four leaflets. Although the Broad Bean is a relation of the Sweet Pea and Scarlet Runner, it is to be noticed that it has no means of climbing When the Broad Beans have been growing sturdily for some time, a small bud will appear at each side of the main stem, coming out from the seed These buds are actually between the cotyledon and the plumule (in the axil of the cotyledon), and are regarded as proof that the cotyledons are true leaves, since this is the typical position in which buds grow

Both Sunflowers and Broad Beans grown indoors are apt to develop into long, straggling plants, so it is as well to grow some out-of-doors, in order to watch their normal growth. Not only is the growth less rapid, and therefore the whole plant sturdier, but the leaves are different in colour, having in the Broad Bean a greyish tinge

SKETCHES FOR THE BLACKBOARD

SUNFLOWER I, II, III, and IV Germinating seed, *r h*, root hairs, *r*, radicle, *h*(*a*) to *h*(*b*), hypocotyl; *c*, cotyledons, *l*, first leaves

BROAD BEAN V, VI, VII, and VIII Germinating seed *c*, cotyledon, *h*, hypocotyl, *pl*, plumule, *st*, stipules, *bl*, position of blade IX Leaf, showing two leaflets (*l*) and stipules (*st*). X. Mature leaf

SECOND YEAR'S COURSE

OF

GEOGRAPHY

TOBOGGANING IN CANADA

(Class Picture No 76 in the portfolio)

PRACTICAL GEOGRAPHY

INTRODUCTION

MODERN school geography is a convention. Although this is more definitely the case in the later stages, yet in the primary school the course should be planned in relation to the agreed dogma favoured by geographers. The accepted creed has an alphabet and a vocabulary all its own The geographer uses the term "sheep" in a different sense from the usages of either the farmer or the biologist, his interpretation is nearer to that of the ordinary man; to him a "valley" is something more than a trough in the earth's undulating surface and an obstacle to the engineer, and is something less than a surface conformation which betrays its history to the geologist From one point of view geography is as conventional as formal Euclid, and it is this formal body of dogma which controls the aims of the teacher

In the primary school the pupil is to be introduced to the essential elements, the geographer's terminology and the map as a geographer uses it, it is to be suggested to him that some time or other he will learn to appreciate the formal relationships and will be able, after a time, to "reason why."

Geography in the primary school, as in all schools, is not geography unless it is purposeful, a geography lesson is one of the easiest lessons for a teacher who has a gift for description, since it is so easy to fascinate the children with the "fairy" stories of other folk and other places different from those they know at first hand, yet unless these stories have a precise position in a course their telling is a waste of time. It is equally easy to deaden the budding intellect with specious reasoning of the type "A is A, because it is A," where the three letters A stand for three different ways of saying the same thing in different words. On the other hand in the primary school reasoning of the type "A is B, because both depend on C" is difficult mainly because the geographical vocabulary to which A and B and C all belong is imperfectly known.

There is a large measure of justification for the gibe in the well-known story of the boy who answered the question, "Where is New York?" propounded by his prospective employer, by saying, "I don't know, sir, but, if you will tell me where it is, I will tell you why it is there" Any one who is familiar with thousands of examination answers to questions in geography knows that the fundamental error in much learning of geography is ignorance of locations. It is a safe assumption that a child who inserts Lagos, Bombay, Durban, and Rio de Janeiro, on the same coast line of an outline map is ignorant of geography, although he may have a nodding acquaintance with many verbose statements which he deems to be geographical descriptions and explanations.

It is the first function of the primary school to begin with the answering of the question, "Where is it?" This function should become increasingly dominant throughout any course in geography for the main reason that its answering is often the only school introduction for the child to the conception of two dimensions Too many people grow up without any sense of perspective, either literally or figuratively; they can "see straight ahead" but they cannot see sideways at the same time Geography is essentially a training in perspective, and in the primary school, "where" is more important than either "what" or "why."

Where is it?—Let us begin with a board of soft wood perforated with rows of holes, having coloured pegs to fit the holes. Insert one peg in a hole. Ask for a description

of where the peg is. "In the fifth hole of the third row." Ask which fifth hole, and which third row? to determine the notion of starting points. Label the rows and number the holes; let the pupils place pegs accurately in position to order, and let them describe the positions in which you place pegs.

Pass on to seats in the class and to the elucidation geographically of an address,— "16 Smith Street."

Having reached the beginnings of the notion of two dimensions, put a drawing pin somewhere in a large blackboard and ask where it is. The pin represents a ship needing help on the waste of waters, or a stranded airman forced down in the desert, there are no landmarks, not even the lines of the edges of the blackboard Wireless communication is possible How can he tell the world where he is? Probably some child will suggest some feasible notion which can be used to develop the idea of the compass points, or the idea of squares, which is at the back of the convention of latitude and longitude. In time the children will reach the notion of the starting point at the wireless station, and either "so many miles south-west," or "in square M 6," i e. in the sixth square to the left of the Mth row of squares down. And so we come to drawings, or the compass points. Put up a plan of the child's locality on a large scale, marked off with reference squares. What's your address? Put a tiny flag on the drawing to mark your house Where is your house? In square T 9

Perform the traditional experiment in the playground, or at a south window, with the noonday sun casting a shadow of a stick Mark on the ceiling the four points. Place labels N, S, E, W, prominently and appropriately on the walls Practise the children in moving to order "5 paces north and then 8 paces east" The sense of two-dimensional direction matures slowly; exercises in orientation are a commonplace in Intelligence Testing because the power to think spatially is an evidence of incipient maturity. Mark the compass points on the drawing of the locality and combine the two notions.

So far there has been little but talk and movement. Now we can introduce the "treasure island" map, the key diagram to the hidden treasure How to find the island, and how to locate the treasure, become incentives to a better grasp of the conventions; and so we come to a map of the ocean with nothing but dotted islets in groups and in isolation, and we pass to the map of the island with the beach and the trees and other landmarks. From this we proceed to the exercise of the child's attempts at imitation, and ask for samples of "treasure island" maps and of drawings showing the way home from school, and so on.

In a casual way, as a commonplace, the notion of distances has been already used The next step will depend on the coincident work in arithmetic and drawing. In geography the relation between paces or strides and yards can be established; 50 paces is a distance dependent on the pacer, 50 yards is invariable. This leads to the next notion.

Size.—This new notion is not linear, but areal; the child achieves notions of relative sizes, not as in arithmetic as definite areas stated in square measure units, but as indefinitely shaped portions of the earth, usually as units of something larger,—a field is part of a farm, a district is part of a town. It is not necessary to wait for the formal arithmetic since the real appreciation of areas comes in the secondary school.

Start with a rough drawing on the blackboard of a field with a tree, fences and a gate; the problem is to show the field and the rest of the farm Another board is needed and the field is re-drawn to a different size and the rest of the farm inserted; proportions are maintained, the general picture of the field is retained; it is smaller. So we pass on to scales half-scale, tenth-size, and so on, and on to the representation of distances on different scales. This notion is developed at first pictorially, and may be related to the notion of the appearance

of the same object at different distances, to lead to the imagination of the land in the locality as an airman might see it. This notion is developed into the drawing on the same sized sheets of paper of the locality as seen from a mile up, two miles up, five miles away, etc.—all imagined. The greater the distance the smaller the size. This will lead to the comparison of the locality map with the plan of the town, the plan of the town with the map of the district, and so on to the county map, the map of England, and hence to the British Isles, to Europe, and the World Thus the child reaches the atlas.

Throughout all this the dominant note is not scale, but persistence of shape, and the children need all the practice they can get in this connection. Australia, Newfoundland, the British Isles, Africa and the other continents should become immediately recognisable from their shape whatever the size

From a field as part of a farm we have reached the notion of England as part of the world, and we can now pass on to the globe. A plain black and white globe as large as possible with the continents in outline is all we need to begin with. Shapes come first, then relative positions by compass directions, then sizes. It is wise to have this globe always on view, and to affix a flag on any spot mentioned in class In time this globe will become so well known that a more detailed globe of the conventional type with names and colours can be introduced; but care is required not to swamp the facts already known, in the plethora of names usually crowded by inconsiderate globe makers on the printed sphere Exercises can follow on the relation between the atlas and the globe. Tommy's uncle writes to him from Calgary; Tommy wants to know where Calgary is. Tommy learns to use the index to his atlas, and proudly sticks a flag on the globe for Calgary. James is a collector of stamps, he is proud of a rare one, he fixes it in his album and wants to know where Nicaragua is, he proceeds after Tommy's fashion and another flag appears on the globe

How to get there.—The child is familiar with streets, roads, railways and canals. They all lead in two directions, and so he is familiar with travel either in fact or in thought along a line This familiarity should be fostered. In place of the road which twists, he can think of a line to the SW.; he can think of the sequence of towns along the railway at which the train stops, let him also think of the sequence of countries and towns along lines to the N, the SE., and so on

Which is the direct way to London? Here the ceiling is of use.

The road has its signposts, the classroom can have its direction arrows on the ceiling An arrow points the way to the nearest big town, another to London, a third to France and Paris, a fourth to Ireland, the Atlantic and America The arrows can be duplicated on the globe by coloured lines. "Look towards the North Sea, and say in which direction you look," can be a frequent exercise.

An exercise in imagination can be given on similar lines. Ask for a sketch drawing of the ceiling of a school in Australia. Train the child to the imaginative translation of himself from here which he knows, to there which he does not know. Fix the class collection of pictures in boxes or frames on the wall in correct relation to the cardinal points and in correct order, so that the curious child can go to them and look at them in sequence, and imagine them as the successive places he would see on an air journey in this direction It is not wise to consider any picture out of relation to the location of the place depicted. Follow the local river both ways pictorially in sequence, treat the local road and railway similarly, and so pass on to the consideration of the ships of England and the routes they follow The world is a set of orderly sequences of things to be seen along lines which radiate from the homeland.

Into these orderly sequences may be fitted, on occasion, the location of current events in which the children may be interested,

and also the stories told by the labels, such as Canterbury lamb, Danish bacon, with which children are familiar in the shops.

What is it like?—Primarily the description of what a hill is like is an exercise in English, in oral composition. Before the geographer can begin his studies of surface features the child must have some experience in the use of the words hill, valley, ridge, stream, etc It will not suffice for the geographer that the child can explain these words in terms of other words; the child must be able to visualise and imagine the reality for which the words are labels. The child must be able to model these surface features, he must recognise them in pictures. He should be able to sketch in some crude fashion what they are like Ability to sketch may be fostered by the use of tracing paper and simple photographs Let the children take a picture postcard of a simple scene and trace the main lines, the skyline, the road, the stream, etc.; let him then be shown how to add a line or two to give a sense of slope, until in a crude conventional way he acquires some facility in sketching In all this much depends, first, on the character of the locality, and, secondly, on the character of the holiday excursions which the children make. In any event the illustrations in some of the books in the school library will provide useful material.

From this early notion the geographer may proceed slowly to the study of differences, this hill in contrast with that, this part of the river near its source in comparison with that part near the mouth, this plainlike valley with that mountain gorge Most of this is still primarily a lesson in English, the fitting of the suitable adjectives to the nouns; it is an exercise in the convention of everyday speech. Towards the end of the primary school course, when the vocabulary is known, arises the question of describing a section of the country, in such manner as to tell someone who cannot see it what it is like The first attempts will be made in words and crude sketches; they will lead to the notion of economy of effort The map may then be regarded as one of the labour-saving and time-saving devices of modern times

Here the use of the scale notion may be useful in the reverse order On the map of England the local hill which looms large in the landscape is a dot, the manner of its depiction on a map is traced backwards in increasing size until the child is introduced to one of the contour conventions, the colour washes with large vertical intervals, to be seen on some county and district maps Lowlands are green, slopes are brown, the darker the brown the higher the ground, until the dark brown on the map means the top of the hill which the children can climb Then comes the excursion to the top of the hill There, with a large map laid out on the ground correctly orientated, the actual feature may be compared with its conventional representation The first map work of this kind must be done "in the field" When this has been done the geographer begins to teach English, he takes samples of maps and gradually develops a technique of interpretation of the map symbols in words, and so introduces the notion that a correct map transcends the best verbal description which they can make. The map is more important, more useful, than verbal statements In time the child will realise that a sketch made in five minutes can tell the initiated much more than a composition which occupies half an hour; he has learnt something of the modern necessity for economy of effort

While the child has been achieving a wider outlook on the world along these lines of thought, some time or other the thought has been presented to him that all the things he has talked about have some relation to people, and he will be ready for the next notion

What manner of folk exist and what do they do?—Here again the preliminaries belong to English. what nouns imply workers, and what adjectives fittingly

describe these workers. Here again also the child begins at home. He classifies the workers whom he knows, and proceeds outwards sequentially along his direction lines to the types of workers to be met His arrows on the ceiling now are sign-posts to folk,—this way to the farmers, that way to the fisherfolk, the other way to the miners, and so on He distinguishes between the primary and the secondary occupations, and achieves the notion that some work is almost self-contained, while other work is dependent upon workers elsewhere, and ultimately finds that even apparently self-contained work is not worth while except in relation to the needs of other folk, it is not worth while to catch fish on a large scale if no other people want the fish when they are caught, rich deposits of iron ore are not worth the mining unless the ore can be disposed of to others who require it.

When the ideas have been acquired, then again the map becomes an economy On the district, the county, and the country map in turns the type of workers are inserted at first by name. But the bigger the area depicted the less room is there for detail, and first comes the need for the classification of occupations, and later the need for symbolic presentation of the generalised terms adopted The globe is dotted with coloured flags, each colour representing a type of work which men do

The flags on the globe begin to take on a pattern, they are not higgledy-piggledy, and this pattern requires some explanation, and the beginning is made in simple reasoning. Farmers congregate here, lumberers there, fishers elsewhere. Why? The simple elements of the main natural vegetation regions of the world then become manifest. The ceiling arrows now point to the forest, the grasslands, and so on

But the ceiling arrows are beginning to become complicated They are direction signs to places, to types of folk, and to kinds of products, all in relation to the background of types of surface conformation and types of surface cover It is high time that these ideas were sorted out. There are five sets of ideas Which belong to which? Certain associations must be made. It is now worth while to take the direction sequences in turn as lines on the blackboard, and tabulate for each the correspondences such as North Sea—fishers—steamships—ports and dock-workers—railway termini—holiday resorts, etc Certain things fit, and not only fit together, but fit into certain places in the world.

All this leads to the final stage in the primary school, the beginnings of the study of why these things fit in the way they do.

Why ?—The notion that things are not haphazard involves treatment in two directions, which may be summarised conveniently by the terms Weather and Climate. The combination of these two notions in the view that the "prime cause" of both is the sun may be just glimpsed by the more capable children, for at this stage nearly everything depends on the capacity of the children. Associations of ideas are possible to these young children, but the appreciation of casual connection is often beyond their powers. An attempt may, however, be made to provide some simple connectives.

The study of the weather may have begun in earlier years by the mere noting of weather changes, the simple record of seasonal variations where the differences are sufficiently large to be appreciated by the children There are three factors of importance,—rainfall, temperature, and cloudiness The dominant factor is cloudiness For British children the state of the sky as a screen against insolation has more importance than any other weather condition Winds in relation to clouds are of secondary importance. The facts should be noted as they occur, until the children have some notion of the associated phenomena. These are observation exercises suitable to be spread over the early years. They will lead to such associations of ideas that ultimately the children will be able

to talk sensibly on such topics as "The work of the rain," "The effect of the frost," "Heat and the work of the farmer and the market-gardener," "The seasonal sequence."

This is the simpler sequence of thought, the regularity of the annual changes and their consequences; later, the other sequence of thought can be introduced, that is the notion summarised by the phrase the Climatic Regions of the World. From the concept of the main vegetation regions allied to the notion of the influence of seasonal changes on the growth of plants, etc, the children can be led to the notion that climate is an explanation of vegetation, and the English climate and the English vegetation can be fitted into the world scheme. The ceiling arrows now take on their sixth and last direction sequence; they point to the deserts, the winter rain areas, the frozen wastes, and these areas are associated with the other five sets of conditions.

Finally, the relation of all human activity to the sun is suggested by the fact that the final explanation of the geographical phenomena depends on the sun, somewhere each day of the year wheat is being harvested.

The purpose of this article has been to demonstrate the lines of thought which should result in a syllabus for teaching geography in the primary school. The importance of the descriptive side of geography has been discussed elsewhere. In this article attention is confined to those aspects of teaching which depend upon the activity of the child, upon what is sometimes called "practical work." The main thesis is that the child should learn the geographical alphabet and grammar in such a fashion that he is inhibited from making fundamental errors. The child should know his sequences and associations just as accurately as he knows his multiplication table, and he should read his map as easily as he reads the text in his reading book. He can begin to acquire perspective, the power to imagine himself in surroundings which differ from those of home, he begins to appreciate the "Not-I" in an environment of "Not-here."

The teacher will look in vain in the foregoing for a syllabus. In the primary school each teacher must work out his own geographical salvation. In the first place stands the teacher himself. What ways appeal to him and how much time and effort he has to spare are fundamental considerations. Then come the children What is their average capacity? What is their rate of growth? What are their habits and home conditions? Then there is the school; is it in the country or in the town? What background of common experience does its location provide? No syllabus can take account of all these variables which are the more important the younger the pupils are.

All that has been attempted is to suggest the fundamentals which must be grasped, certain lines of development along which progress is easy. The dovetailing of these notions into the rest of the geography, and the fitting of them together so that the passage from one aspect to another is easy for the pupils, must be left to the teacher.

Two final warnings may perhaps be valuable. First let the written work in primary school geography be all diagrams, sketches, maps; let there be no English composition in writing. Talk, discussion, the statement of ideas orally, speech of any and every kind is valuable, but the dead written word is fatal. Primary geography is an oral exercise.

Secondly, let the teacher pay most attention to the character of the inevitable mistakes which the pupils make, he will learn more from the way in which the pupils fail than from the ways in which they succeed. The right answer may be parrot-like repetition; the wrong answer is frequently essentially an individual product. A wrong answer usually means not only that a single fact is wrongly apprehended, but that the whole set of associations, and, perhaps, the whole of a sequence of notions, is incorrectly made.

It has been pointed out that it is not possible to give a syllabus or course of lessons in practical geography which will meet the needs of all teachers in the primary school, but the following series of lessons will be helpful as a guide to the method of dealing with this important subject

LESSONS IN PRACTICAL GEOGRAPHY

1. PRELIMINARY TALK ON THE EARTH

Aim—To give the children a simple account of the formation and the movement of the earth

Story.—How many of you have noticed the stars as you have walked along on a winter's evening? I expect that most of you have done this and thought what a large number of them there are. If you had been able to look at them through a telescope, you would have seen many thousands more, which are too far away to be seen with the naked eye Those thousands of twinkling stars, the moon which appears to change its shape, the sun which gives us light, and the earth on which we live, are some of the things which together form a great group that is called the universe.

For hundreds of years men have wondered about the stars just as you do to-day, and for many years men knew very little about them. Clever men have, however, found out some of the secrets of this wonderful universe. They tell us an interesting story of how they think the earth was formed.

Thousands of years ago, the sun was a vast ball of greatly heated matter which whirled round in space, flinging off masses of hot gas as it turned. Each of the pieces flung off took the shape of a ball and turned, just as the large one did, at a great speed. As the masses of gas were thrown off they began to cool After a long, long time they hardened, till the gases changed into solid rock.

It is on one of these spinning balls that we live. Our spinning ball is the earth From it we can sometimes see the other worlds that were flung from the big, hot mass of the sun, which sent our world into space One of these companions of ours which is always going round the sun with us is called Mars. There are nine of these balls, or planets, in all Each of them moves in the same regular way round the sun, but they are at different distances from it.

It is from the great fiery ball which flung our earth on its course that we still receive light and heat You have all probably noticed that the sun appears to rise in the sky each morning, and descend in the afternoon, until it seems to sink out of sight Perhaps you will be surprised to hear that these daily changes in the place of the sun are not caused by the sun moving round the earth Really the changes which you see are caused through the spinning movement of our earth When the place on which we live is turned towards the sun, it is day, but when our home is turned away from the sun, it is night

Now that you have heard something about the nine worlds that spin and travel round the sun, you should hear something about the moon. This dull ball, which is generally seen on cloudless nights, moves round our earth in the same way as the planets move round the sun You may not feel sure that the moon is shaped like a ball, because it does not always appear to be the same shape, but what you can see most clearly is that part of the moon on which the sun is shining.

There are, of course, many hundreds of objects which you see in the sky besides the moon and the planets, but they are all so far away that they appear to be tiny. Even when we look through a telescope some of the stars appear to be no larger than a pill. Each of these little lights is a sun, having a few smaller worlds travelling round it.

Teaching hints.—The important points for us to keep in mind during the lesson are, firstly, that we should give the children the

idea of a scheme in the universe, and secondly, we should make clear our own position in this cosmos. The story is a preamble to our work in the course, because it has been found best to give ideas of the earth's movement in space as soon as possible. By so doing we put the world first in the child's mind instead of the globe, which we must not forget is only a representation. Thus we defer the harder process of representation until the children have at least an elementary conception of the object represented.

It may be admitted that there are different opinions concerning the origin of the world, but the story gives the one which is at the present time the most generally accepted. The effective value of the story may be tested by asking the children simple questions about the stars a few days after telling the story If the children are able to tell the most simple ideas, or, better still, if they ask us something of what they have seen, then we have accomplished much towards creating the spirit which should follow all our work in practical geography. Perhaps some of the questions that we are asked may be too difficult for a reasoned explanation. It is often surprising what thoughts the starry skies provoke in a child's mind, and we should dispel the perplexities with care

Teacher's Notes on the Solar System.—The earth is only one of a great number of spheres in space. The nearest of these is the moon, whose average distance is about 240,000 miles. The stars are also spheres far larger than the moon, but billions of miles away. An airplane travelling at 300 miles an hour would take tens of thousands of years to reach the nearest star. These stars are all fiery hot, but the moon is a cold mass of rock.

The huge sun, another sphere, is a star with a diameter of 860,000 miles. Its average distance from the earth is some 93,000,000 miles, and yet it is so hot that we receive our heat and light from it.

The sun is the centre of a family of spheres which form the solar system In this system, there are nine large spheres called planets, of which the earth is one, and more than six hundred small planets. The nine large planets in order of distance from the sun are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto The sun and stars shine by their own light, but the planets merely reflect light, like the moon. The bright evening and morning stars are planets like the earth. From one of them, the earth would be seen to have the same steady bright light that they show to us. The most distant planet is Neptune. If an express train could have started for Neptune when the Romans landed in Britain, and could have travelled steadily onwards day and night at the rate of 60 miles an hour, it would not yet be halfway there. Jupiter, the largest planet, has a diameter twelve times greater than our earth.

All the planets have been found to turn, or *rotate*, on an axis. The earth takes one day for rotation; the sun over 25 days; Jupiter takes nearly 10 hours; the moon $27\frac{1}{3}$ days. All members of the solar system travel, or *revolve*, round the sun. Planet, which means *wanderer*, was the name given by the ancients, because planets were observed in different parts of the heavens on different days.

Several of the planets have moons. The word satellite, meaning *attendant* or *follower*, is given to these smaller spheres because they *follow* their planets in their revolutions round the sun. The earth has one moon; no moons have been discovered for Mercury and Venus; but Saturn has nine (possibly ten) moons.

It is interesting to note that the moon's *rotation* takes $27\frac{1}{3}$ days, and its *revolution* round the earth also takes $27\frac{1}{3}$ days, so that we always see the same face of the moon. As seen from the earth there is no *apparent* rotation of the moon.

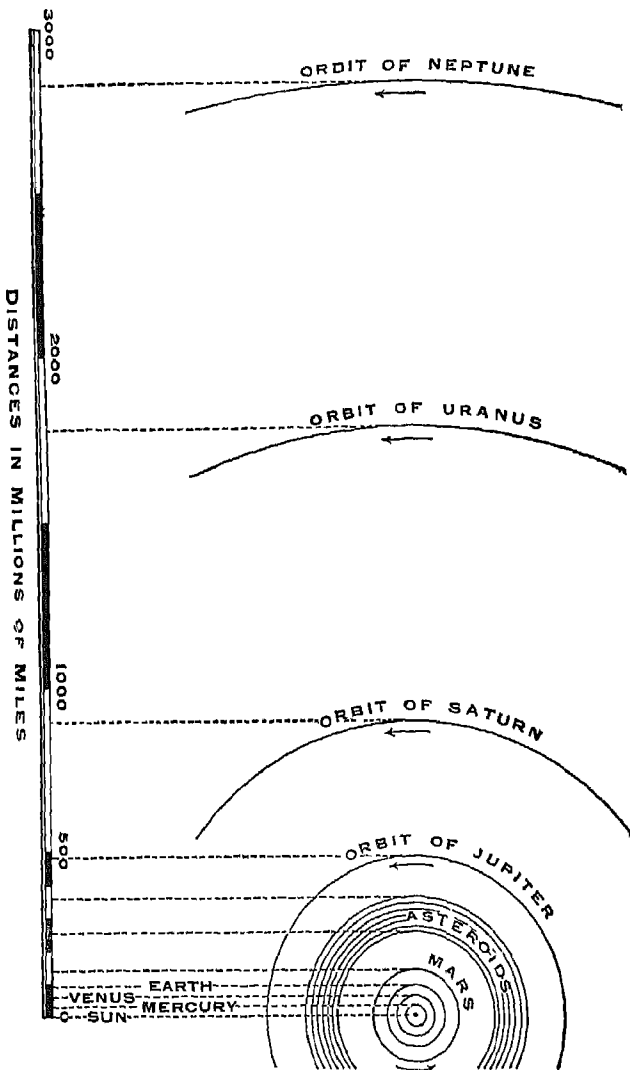
The sun is the only member of the solar system that is hot enough to glow. The earth is cold at the surface, but hot within. The small moon, though now cold, was probably once hot within. The heat of the

sun is so great, that even mineral substances exist in the form of gases This white-hot sun radiates heat into space. With great speed (in about 8 minutes) these rays cross the 93,000,000 miles that separate us from the sun. A fast train would require 175 years to do the same distance

Stars.—Stars are suns, some of which are a million times brighter than our sun. They are all travelling, some so fast that a cannon ball in flight alongside them would appear to be creeping The distance to the nearest stars is so great that miles are useless for measurement, and the velocity of light is used as a measure. Light travels at the rate of 186,000 miles a second, that is, a ray of light would travel nearly 7½ times round the world in one second, yet the nearest star is 3½ *light years* away, and some stars are thousands of light years from us. From this statement we can gain some slight idea of the immensity of the space surrounding our comparatively tiny solar system with its sun, planets and satellites

The *Shape of the Earth*—In early times, men believed that the earth was flat. Some men, however, noticed that the apparent meeting place of the heavens and the earth was circular, hence the earth was thought to be like a huge flat cake surrounded on all sides by the ocean. It was very difficult for men to imagine how this vast disc could be supported in space. According to the Hindus, it was supported on the backs of four elephants, themselves standing on the back of a huge tortoise swimming in the sea. The Northmen represented the disc as supported by a gigantic ash tree, which had its roots in hell, and its branches in heaven.

It was not until about the sixth century before Christ that philosophers taught that *the earth was a fixed ball* with other bodies revolving round it. Aristarchus of Samos, who lived about 250 B C, made the startling discovery that *the earth revolved.* This fact was not generally believed until 1800 years afterwards. Copernicus, A D 1473-1543, devoted many years of his life to proving that the earth revolved Later, Sir Isaac Newton, 1642-1727, showed that the shape of the earth was somewhat like an orange, slightly flattened at the poles, and bulging a little at the equator It must be remembered, however, that it is an exaggeration to say that the earth is the shape of an orange; for the difference between the earth's shape, and that of a ball, is very slight. The circumference of the earth is approximately 25,000 miles; the diameter through the centre at the equator is 7,926 miles, and the diameter through the centre from the north to the south pole is only twenty-six miles shorter.

Distances and sizes of the planets—In his book, *The Vault of Heaven*, Sir Richard Gregory gives a description of the solar system which enables one to form a clear idea of both the distances and sizes of the planets. He says: "The earth is approximately eight thousand miles in diameter. Let us represent this by one foot and construct an imaginary Solar System on the scale of one foot to eight thousand miles. The dome of St. Paul's Cathedral, more than one hundred feet in diameter, is a fitting representation of a hemisphere of the sun. Mercury would be proportionally represented by a baby's head at Chancery Lane; Venus, by a globe rather less than one foot in diameter revolving in a path at the distance of Charing Cross from the Cathedral dome; the earth by a one-foot globe at Buckingham Palace; and the moon a cricket ball circling round her at a distance of thirty feet Mars, a man's head, travelling in a circle having for its radius the distance from St. Paul's to South Kensington Museum, the minor planets, or asteroids, small shot, revolving at the distance of Hammersmith; the radius of Jupiter's orbit would be just beyond Richmond, the planet itself being a globe eleven feet in diameter; Saturn, a nine-foot globe, would be at Staines, near Windsor, and would move round St. Paul's at this distance;

THE RELATIVE DISTANCES OF THE PLANETS FROM THE SUN

Uranus would be a four-foot globe at Reading; and Neptune, a globe four and a half feet in diameter, would have for the radius of his orbit, the distance from London to Oxford."

2. FINDING DIRECTION

Aim.—To show the importance of a general rule of direction.

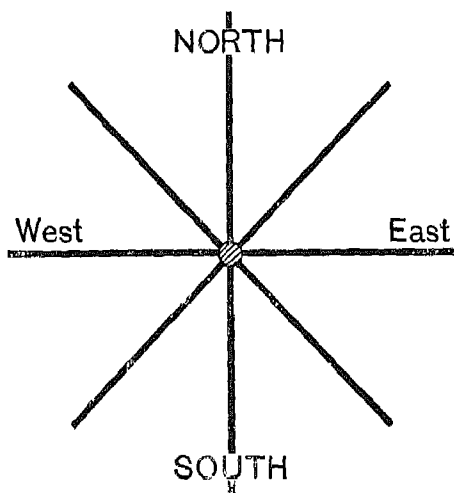
Method.—Begin the lesson by asking several children in turn to describe their way to school Ask each child to give a description of the return journey also. Consider with the children the different methods which have been used to describe the journeys. This should elicit the fact that one or more of three methods is used· (1) the streets along which the child came are mentioned by name, (2) outstanding objects are referred to, (3) the turnings that have been made from the first street are enumerated

Proceed to tell of the difficulties of travel in unknown, or undeveloped, country, where there are no tracks or landmarks Ask the children to name places where it may be difficult to find one's way. "In the desert" and "On the sea" are answers which will readily be forthcoming

Tell the children of the peculiar property of the magnetised needle. A simple illustration of the action of a magnetised needle will be found helpful. This can be done by floating a needle, one end of which has been rubbed with a magnet, in a bowl of water. Move the bowl to different desks in the classroom Ask the children to point in the same direction as the needle head Take care that the children point in the correct direction, and not to an object in the classroom Name this direction.

Place the blackboard in a horizontal position. Draw a north–south line, mark the north, taking care to let the children see that the magnetised needle is used as a guide. Make a line crossing the first one at right angles, and name the other points.

Ask the children individually to point to the north with the left hand, and to the south with the right hand Continue similar exercises in which the children find a second compass point when they have found the first one correctly

Show a mariner's compass and let the children draw, on cardboard or stiff paper, a copy of the dial on which only eight points are marked. Keep the compass cards for use in later lessons (See diagram) A slotted upright post, or stick, such as those in use on some railway stations, is valuable Make signs (N, S, E, W) which can be slipped into the appropriate grooves. (See page 422)

A Simple Compass Card

Teaching hints.—It is not essential that the whole of the foregoing work should be completed in one teaching period There are several stages where the teacher may conveniently make a break to suit the peculiar circumstances Each division of the work should, however, include an application of the principles taught, no matter how brief the teaching period, or how elementary the principles

In this lesson it is important to impress the point that *direction* is what we must think about Do not allow the children to say that a certain point on a wall is the north. The portable indicator, if used frequently, will prevent such muddled thought. The purpose of the story is to show the value of the mariner's compass, and also, as an extension of the previous story, to explain early ideas of the earth's shape.

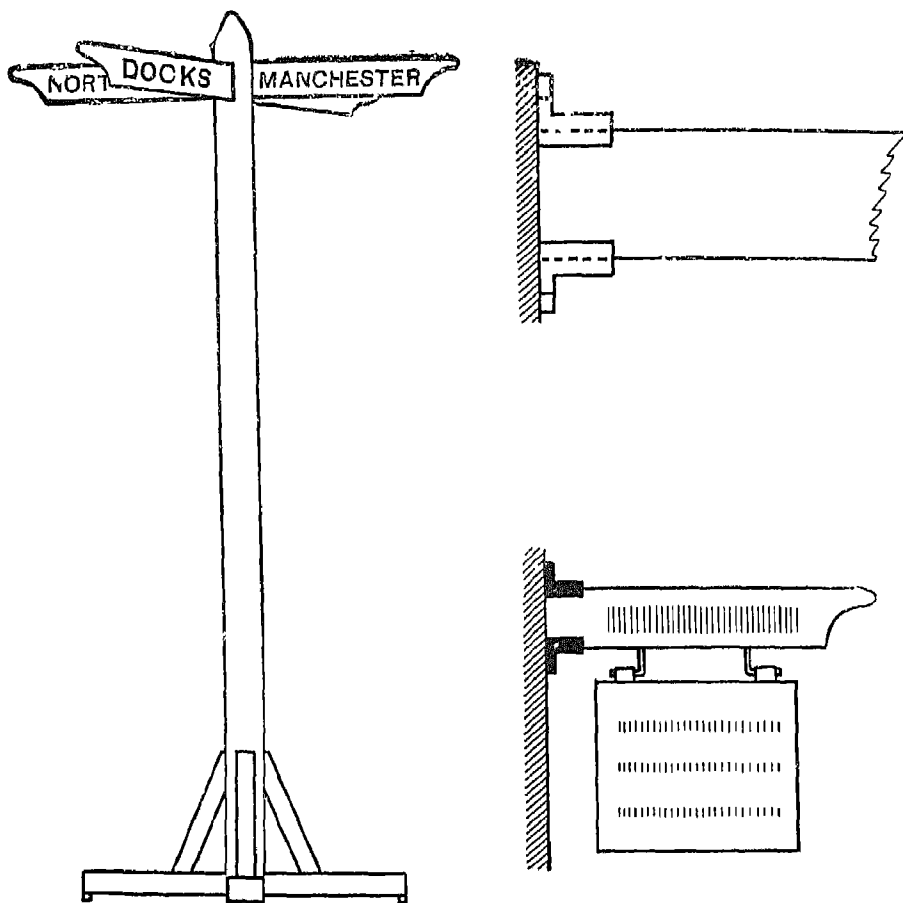
STORY

The Voyage of Christopher Columbus

Many of you will have heard in your history lessons the story of the voyage of Christopher Columbus to America Have you ever wondered what it must have felt like to be on one of the ships which sailed on this famous voyage? It must have been a very risky voyage and one that few people would care to make. That is why some of the sailors who went with Columbus were taken from prison and were compelled to go on board

At that time very few people knew as much about the world as did Columbus He wanted to find the way to the Spice Islands, for everybody wanted pepper and other spices to eat with their salt food. In those days farmers had very little hay and no turnips or mangolds with which to feed their cattle during the winter months, so in the autumn they killed most of their animals and salted the meat to keep for winter food

So Columbus was going to sail westward in an attempt to reach a place which had previously been reached by going eastward. He felt sure that he would reach the coast of India, but he did not know, and nobody knew, that a great New World lay in the way (Use the globe to explain this paragraph.)

To try the test he had to sail across an unknown ocean for a great distance in a small sailing ship Many men who lived at the same time as Columbus had made long voyages, but they had not sailed far from the coast. By keeping near the coast, it was easy for them to pilot their ships with

PORTABLE DIRECTION POST FOR USE IN THE CLASSROOM

the help of landmarks, such as headlands and capes. The voyage which Columbus planned was different from the others He was going to steer his ship on a straight course away to the west, where there were no landmarks to guide him, and where no man had previously sailed How was he going to keep his ship heading in the same direction when he had lost sight of the land?

Some of you may be able to tell how Columbus could keep his ships heading for the west. It was a way which meant that at every moment someone should be observing the direction in which they were sailing. Somewhere on the ship was the small instrument called the mariner's compass which was necessary for the success of the adventure The sailors were frightened, for they knew that each day they were sailing with their backs towards home. They became more and more timid as they sailed on, fearing lest they should slip over the end of the earth Imagine how the sailors would feel when, morning after morning, as they looked over the bow of the ship, they saw no trace of land On deck they could see the compass. Ever since they had left Spain on 3rd August, the needle had pointed to the port side of the ship—that is the right side Now it was October From their own simple records of the voyage, the sailors could tell how many days they had been

sailing on this westward course They knew how many times the sun had risen since they set sail. It was not until the sun rose for the seventieth time since they set sail that land was sighted.

Columbus thought that this land was India, and he returned to Spain with the news that he had found a new way to India. We know now that he did not actually reach India, but he did much more than that, for he found a New World, which is now known as America

(A fuller account of the voyage of Columbus is told in the history section of Volume IV. There is a Class Picture of Columbus' ship, the *Santa Maria*, No 52 in the portfolio)

3. DIRECTION—THE SUN

Aim.—To show how the sun can help us to find direction.

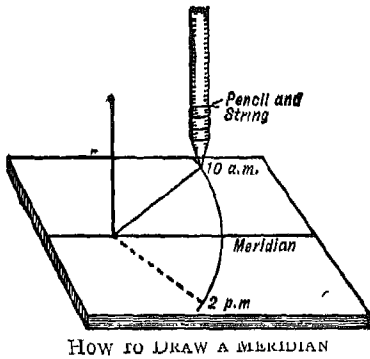
Method.—Ask the children to point to the place where they first see the sun in the morning Then ask them to point to where it is last seen in the evening Try to get answers that will lead to the conclusion that the apparent course of the sun is an arc. This may be done by asking the children to point out the position of the sun at intermediate times. Where do you see the sun as you come to school? Where do you look for it at playtime? Let the children trace the apparent course of the sun by pointing. Ask the children to name the points of the compass where the sun appears and disappears. In which direction must they face to see it when it is highest? In which direction will the shadow then point? If possible obtain shadow lengths by fixing pins in the window sills Ask children to notice the lengths of the shadows at intervals during the day.

If work in the open is possible, the teacher may direct simple observations. Care should be taken to select a level place where the work may be done It will be found convenient to use a shadow stick one yard long Lessons taken in the afternoon session will be found the most suitable during the early stages. Preparations for the work should be made on the same day Fix the shadow stick perpendicularly on a selected spot (A simple plumb line for helping to fix the stick vertically can be made by hanging a door key on a piece of string) Observe the length of its shadow. Draw a line along the shadow cast by the stick. Contrast the shadow with others that were marked earlier on the same day. What changes were taking place in the shadow during the morning? What is happening to the shadow in the afternoon? At what time was the shadow shortest? In which direction does the noon shadow point?

Teaching hints.—Some of the work done in this lesson may be a revision of what has been done in lower classes Repetition of real observation is not time wasted, but well spent, if its results are convincing. The use of the terms "rising" and "setting" has been avoided in referring to the apparent movement of the sun, because they are misleading It will probably be found that to speak of the "appearance of the sun" prevents confusion of thought Care should be taken in referring to the apparent course of the sun.

Much incidental work during the year will be found helpful in teaching the children to observe sun signs Ask them to notice the gardens in a particular street. They will find that the flowers are in bloom on one side and not on the other. Why is this? (The north side gets more sunshine) Again, notice the bark of the trees in a certain road There they will probably see that the bark is green with moss on the same side of every tree. Which side is green? It is valuable work to construct a simple sundial, for its use establishes ideas of coincidence between earth movement and time

The meridian —At some point in the practical course it will be necessary to find the meridian. Fix a rod upright in a place where the sun can shine upon it About two hours

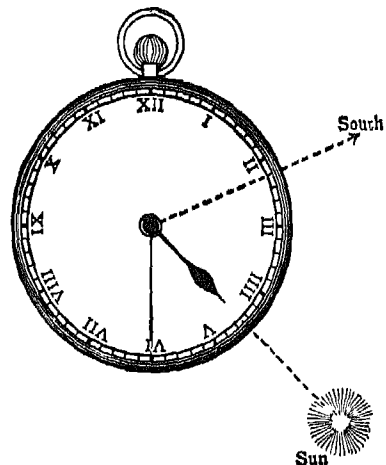
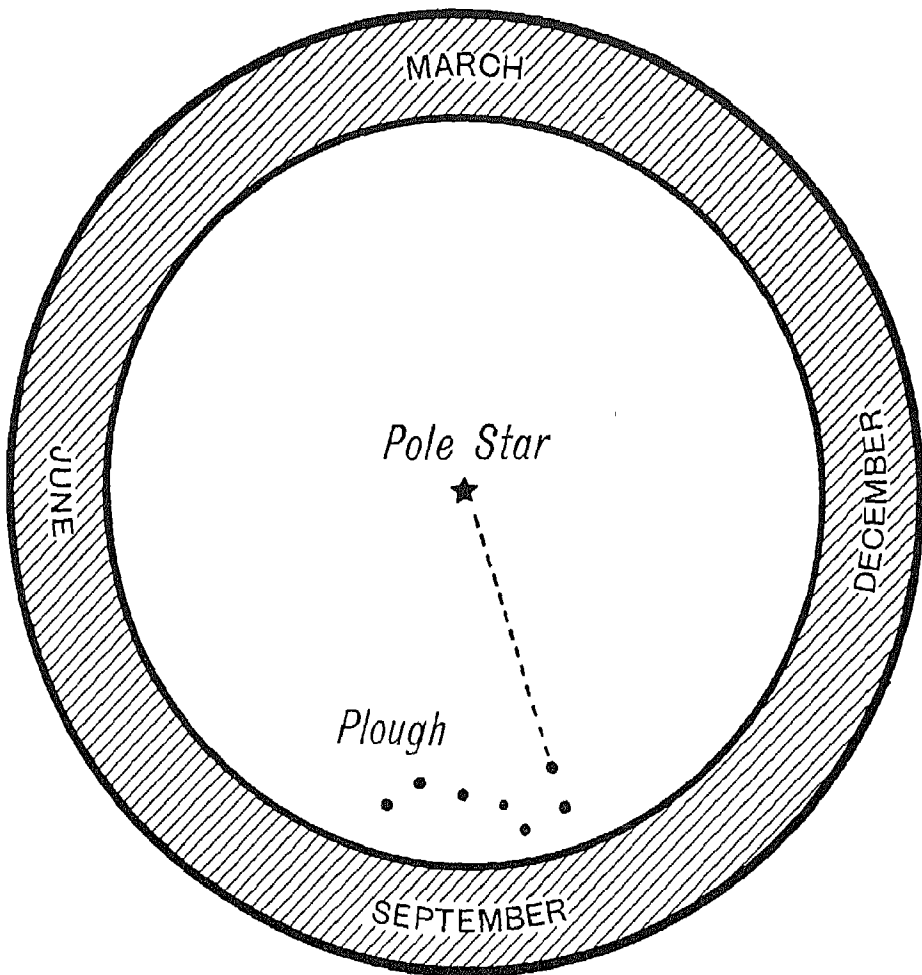
How to Draw a Meridian

before midday, observe the direction and length of the shadow of the rod, and by means of a piece of string, fitted loosely to the base of the rod, draw an arc of a circle having a radius equal in length to the shadow. In the afternoon, mark the point on the arc when the shadow again reaches it. A line bisecting the angle between the directions of the two shadows is a true north and south line. It is a meridian which, if continued, would pass through the north and south poles.

To find the south with a watch.—When the sun is shining, the south can readily be found by means of a watch. Point the hour hand to the sun, and divide the angle between the XII and the hour hand by an imaginary line. This line will point to the south.

Application to descriptive geography.—Reference might be made to a desert journey, for the children have doubtless some knowledge of the camel-men. There is a lesson on *Hot Dry Lands* in Volume I, and a Class Picture of a Camel Caravan, No. 71 in the portfolio The children should understand that in the desert lands the sun shines every day and it can be used as a guide. Could the sun be used as a guide every day in England? The way in which travellers cross the desert is by journeying from one oasis to another, keeping as near as they can to their direct route. In this way their journey becomes a number of zig-zag stages, each of which is a straight march from one oasis to another. Draw a blackboard sketch to illustrate this point. Tell how and why the camel-men begin their journeys in the early morning. Speak of an imaginary day's journey in an easterly direction Let the children tell where the sun would be from hour to hour as they travelled onwards during the day. Let them tell how the shadows would vary in length and direction. Refer again to the experiments made with pins in a window sill, or with the shadow stick in the playground Is it likely that the camel-men would have watches with which they could find the south? Would it be easy to keep watches in the desert? (The fine sand would soon spoil all but specially made watches.) Would camel-men be likely to have compasses? Why not? Do camel-men dress and live like English people? They have watched the sun and stars for centuries, are they likely to change their ways and buy watches and compasses? (Such questions as these are useful because they promote thought and discussion)

4. THE POLE STAR AND THE PLOUGH

Aim.—To show how the stars help us to find direction

Method.—Tell the children that there is a star which always keeps the same position.

How to Find the South with a Watch

CARDBOARD DISCS FOR LESSONS ON THE STARS AND DIRECTION

This star is a good guide to those who want to find directions, as it shines in the north Name the star—the Pole Star. Point out that it is an easy matter for us to find direction on a clear night if we can locate this one particular star. Make a disc of cardboard, diameter about 3 ft, and mark it as shown in the diagram Fix the disc on the blackboard with a drawing pin Tell the children that the signs and the pin head represent stars. Turn the disc in an anti-clockwise direction, and ask the children to point out which star has not moved Notice the group of stars Name the group Ask the children how many stars there are in the group Why is it called the Plough? In which way does the group appear to move? Does the group lose its shape? Which stars do you think represent the handle of the Plough? Does the group move as a plough moves? Join the leading stars of the Plough and produce the line. Ask the children what they notice about this line (It touches the Pole Star. In reality the line of the pointers when extended passes a little to one side of the Pole Star) On the board, beneath the disc, print the word September. That is the time when the Plough is in

the "correct" position. Find, by questioning, the position of the group in March, December and June. Mark these months round the disc.

Let the children make star discs for themselves. Double discs, of different diameter, fastened at the centres with a paper fastener will be found suitable Occasionally the children might be asked to turn their disc to show the position on the night of that day.

If it is possible (as it may be in a private school or with Boy Scouts or Girl Guides), compare at night the direction in which the north end of a compass needle points with the direction of the Pole Star. To do this take a pair of wooden compasses such as are used for demonstration purposes on the blackboard, keep one leg horizontal and point the other leg to the Pole Star. Compare the direction of the horizontal leg with that of the compass needle.

The Pole Star is sometimes called the North Star because it indicates approximately the geographical north. At the north pole the Pole Star is almost exactly overhead. Invite the children to imagine they are discoverers setting out to find the north pole. How could they find their way by night? How could they tell when they had arrived at the north pole?

Teaching hints.—It is important that these lessons should have for their real object the stars as aids in finding direction. Star lore has no purpose in our work unless it contributes to this end. For several reasons the subject of the stars is more suitable for winter lessons, and it is advisable that the work should be done in the first term.

If the children can find local pointers during the lessons on direction encourage them to do so Care must be taken in these attempts to fix landmarks and bearings, lest the children should select objects too near their point of observation. Tell them to look for the distant objects which are prominent, e.g. hills, the distant wood, the high buildings in the next town, the lake down the valley. These places may be associated with the celestial bodies by saying that the Pole Star stands over a certain hill, or over a certain village, the sun at noon is above *x* or *y*.

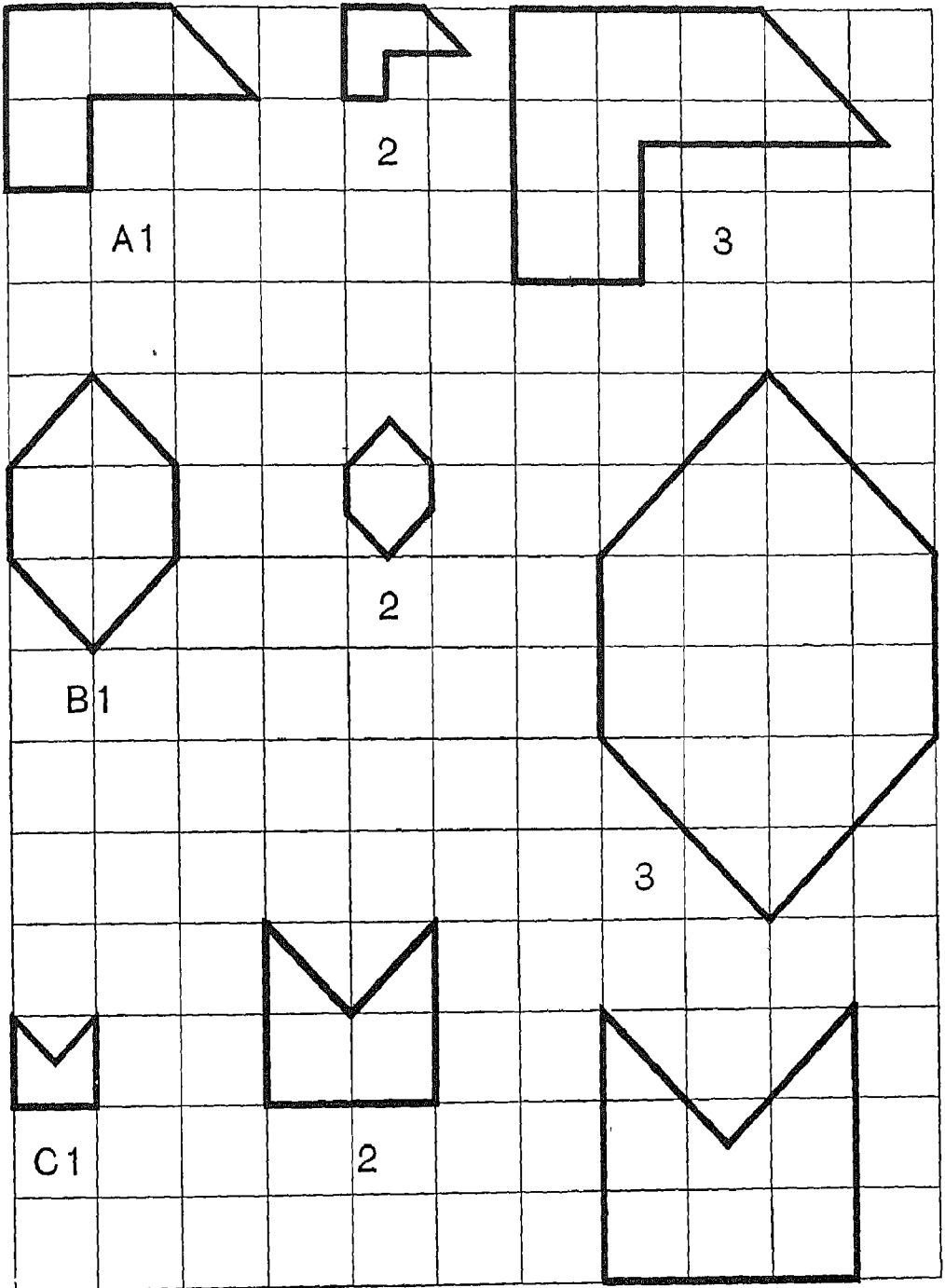
Mention should be made of certain streets which have a north-south bearing. Tell the children that in walking from *a* to *b* on a clear night the Pole Star is in front of them. Invite them to find similar streets, or streets that have east-west bearings.

Application to descriptive geography.—A story of an imaginary desert journey might be told to supplement that told in the previous lesson The children should understand that the stars are seen every night in the desert lands. Are the stars always visible in England at night? They should of course realise that the moon is not always to be seen, and that the stars are the most reliable guides. First tell of a simple north-south journey. Children will understand how much more pleasant it is to travel in the cool air of night than in the torrid heat of the day Tell them of the intense blue of the sky, owing to the clear atmosphere. Compare the smoke-laden atmosphere of great cities. Let them picture the scene—the undulating sand thrown into deeper relief by the moon or star light, the long line of camels, the monotony of the scene except for the splendour of the heavens, the deep stillness Let them imagine what would happen if the guides did not follow the direction as told by the stars. Remind them of the story of the Wise Men and the Star in the East.

5. THE MAKING OF PLANS

PART I.

Aim.—To teach the children how to make and how to read a plan, with special reference to the comparison of shapes.

Method.—Let each child measure the top of his desk. Ask the children the measure-

SKETCHING EXERCISES

Drawings of this character should be done on squared paper to help children to understand that persistence of shape is the dominant point when drawing plans.

ments they have made. What is the length of our drawing paper? How can we draw the desk top on this paper? (By making the drawing smaller than the object.) Accept suggestions for a length from the children, and draw it before them on one of the papers. Ask for suggestions for a suitable breadth. Accept one and draw the figure. Hold up the drawing to the class Does it look like the outline of the desk top? (No) Why? (It is not the correct shape.) How can it be improved? (By making it narrower) Alter the plan and hold it up for inspection. Does it seem to be right now? (Yes) Why? (It is the same shape as the desk top) How have we kept the correct shape? (By making each line $\frac{1}{4}$ of its length on the desk.) Let the children draw the plan. Mark on the papers the scale (1′=3″).

Make a drawing of a side view of the desk on the blackboard. Ask the children to name any differences in the drawings Contrast the points of view Mark the position of your inkwell on the plan which you have drawn Can I show the position of the inkwell on my drawing? (No) Why not? (Because your drawing shows only the side of the desk.)

Measure from corner to corner (a diagonal) on your plans. What is the distance? What will the distance be between the corresponding corners of the desk? Test your answer.

Teaching hints.—In this lesson we are dealing with the notion of area. By children of the primary school this notion is acquired, not by arithmetical processes giving definite areas stated in square-measure units, but by appreciating smaller spaces as units of something larger. From the part we can proceed to the whole, continuing, if we wish, from the desk top to the school, and from thence to the district, and so on to the world.

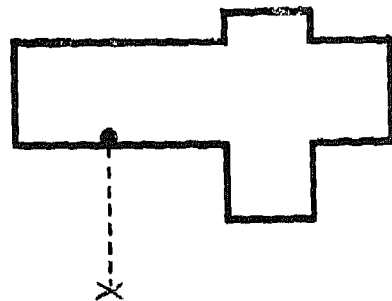
It is necessary to notice that the dominant point is not scale, but persistence of shape The teacher should resort to the device of a scale as a way in which the correct shape of the object is maintained. Use squared paper if possible in these exercises, and give frequent practice in sketching shapes of different sizes similar to those in the diagram. Such work will lead the children to recognise shapes quickly—an important matter when map reading is started.

At this stage it is advisable to spend some time in considering the limitations of the plan which is being made. Bear in mind the dimension that has been lost when the plan supersedes the elevation, we shall require to remedy this defect in our sketch maps next year

As we have noticed above, the use of the scale is not a feature of the plan which we should stress. The simple exercise of measuring from the plan is, however, worth attempting, if it is only for the added interest which the plan has for the child when he finds that he can discover something from it.

STORY

The Hidden Treasure

"This is a real adventure!" cried Roger, as he and his brother Jack pored over the words scribbled in faded ink on the scrap of paper they had found under the attic floor. It was evidently a message left by a cavalier who was expecting a raid from enemy soldiers, and who had hidden his wealth so that they should not plunder it. The faint characters on the paper gave the clue to the hiding place. There was a rough sketch the shape of a cross, and within the

PLAN SHOWING WHERE THE TREASURE WAS HIDDEN

lines on the right hand side was a mark, against which was written, "Treasure buried here." Then came the words, "Find the chipped stone in the south wall, and from there take 20 paces towards the midday sun."

There were the ruins of several old buildings in the village, and the boys could only hope that the one which held the treasure was still to be found. "It's very likely to be the castle," said Roger, "that would be the safest place to hide anything."

"But the castle has four sides the same length, with a turret at each corner, and the plan of that would be a square, not like this," objected Jack.

"Can it be the ruins in the Dene?" asked Roger.

"We'll go and have a look at them," replied his brother "Come on." They made their way to the ruins of what was once a great mansion. The moss-covered stones sunk in the ground marked the foundations of the outside walls of the building, which were connected in places by traces of the inside walls

Clambering up the stones as high as he could, Jack looked around at the outline of the building, which was clear to him as he stood above the ruins. He could see that this was not the building that had been sketched, though Roger insisted that it was the same shape But, as Jack pointed out, the south wall on the plan was a long side, while the long walls of this building were on the east and the west

The boys sat down to think more carefully about the plan, and particularly of the way in which the long walls pointed east and west. Then they knew that it represented the little monastery church. Off they went to see if they could make a more fortunate search this time

Their guess was right. Now the search was beginning in earnest, but another difficulty had to be overcome. The chipped stone which they had to find had crumbled to pieces long ago How were they to find the part of the wall from which they had to make the twenty paces? The lads pondered for some time over this fresh problem, until Roger, who was looking at the plan, had a good idea. "Listen, Jack," he said "I think I know how we can find the spot where the stone was." And he showed how the distance from the corner of the walls to the place from which the steps were to be taken was roughly twice the distance between the hidden treasure and the chipped stone.

Jack accordingly stepped off forty paces from the corner, turned to his right, marched another twenty paces, dug his heel into the ground and shouted, "There's the spot!" Nothing more could be done that day, as it was getting dark, and they would need shovels to dig for the treasure. They marked the spot with a stone and planned to come again the next morning.

Next day the boys began to dig at the spot that they had marked. But they found nothing, and they decided to search again "I think your paces were wrong," said Roger "Your stride is smaller than a man's. Last night I asked father the length of a man's stride, and he told me it was about thirty inches"

"Let's work out the distance and measure it, then," replied Jack "I have a tape measure."

They measured the distances again, and Roger made sure that they turned due south from the wall by using his pocket compass. Again the boys dug, but with the same result,—there was no sign of treasure.

"I think that compass of yours is broken." said Jack. "At twelve o'clock I am going to stand against the wall and measure towards the sun" That time the spot was four feet from the hole that they had just dug. They started to dig again, and they had not long been at work before they came to a small metal box, rusted with age. They had found the treasure!

(The children will be interested to speculate on the nature of the treasure The way in which the boys found the spot should be worked out practically in a field, or in the playground.)

6. THE MAKING OF PLANS

PART II.

Aim.—To teach the children how to make and how to read a plan, with special reference to an appreciation of the relative sizes of spaces planned.

Method.—Revise the points found in the previous lesson, especially noticing what we had to do to keep the shape of objects when we made a plan. Make a large rough plan of a desk on the blackboard Try to draw an equally large plan of another desk on the board. This is impossible because there is not enough room to complete it. Another board is needed. How can we draw the two plans on the same board? We must make the plans smaller. We want to show a plan of the classroom on the blackboard Rub out the other drawing and begin again, making the plans smaller. Arrive at the rule that the larger the object to be drawn the smaller the scale, the paper being the same size.

Consider the relative size of the objects. Examine the spaces representing the desk and the room on your plan Point out that the ratio of the size of different objects is maintained

Let the children make a similar plan, preferably on squared paper. Ask them to let a unit (the side of a square) represent a foot, and give them the dimensions of the room. On their plans ask each child to show, to scale and in correct position, his desk and the teacher's desk Ask each child to find the distance from his desk to the wall on the north side of the room.

Teaching hints.—From the idea of shape we now proceed to that of relative size. When the children are preparing for the second plan, they will see the necessity of reducing the size of their first drawing. It is now our task to develop the child's notion of sizes as parts of larger units.

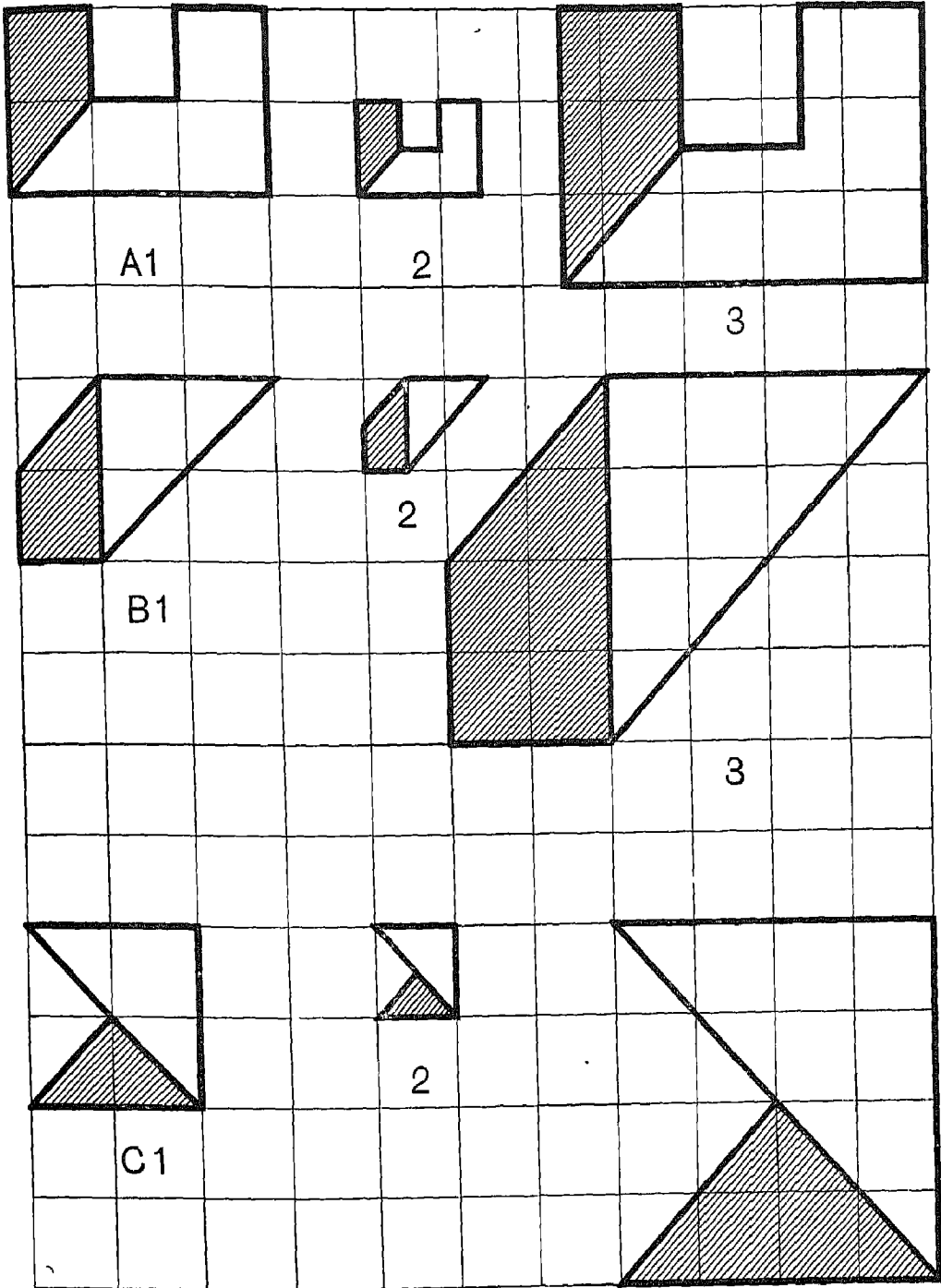
We have shown that drawings of various sizes all represent a plan of the desk, and similarly the plans of the room may be changed in size without detriment. Now let us combine the two plans, and it is by the judicious arrangement of pairs that we can illustrate the point we wish to make When the children tell us that an object "seems to be the wrong size," we are leading them to appreciate the importance of maintaining proportion in their conceptions of size. So, when we speak of the Sahara Desert, and point out the region on a map, the children may think of it as a fraction of a unit (Africa). That unit can be found on any other map, or on the globe, because it has always the same well-known shape, and the Desert could be visualised as a fraction of a unit which is not always the same size.

It is recommended that practice in the representation of space relations be given at this stage. These may be an extension of the sketching exercises suggested in the last section. The diagram shows how the figures may be used in this connection. It is left to the teacher to decide how much help should be given to the class in this work, but it will be well to remember that the drawings are intended to give exercise in the estimation of a ratio.

7. THE MAKING OF PLANS

PART III.

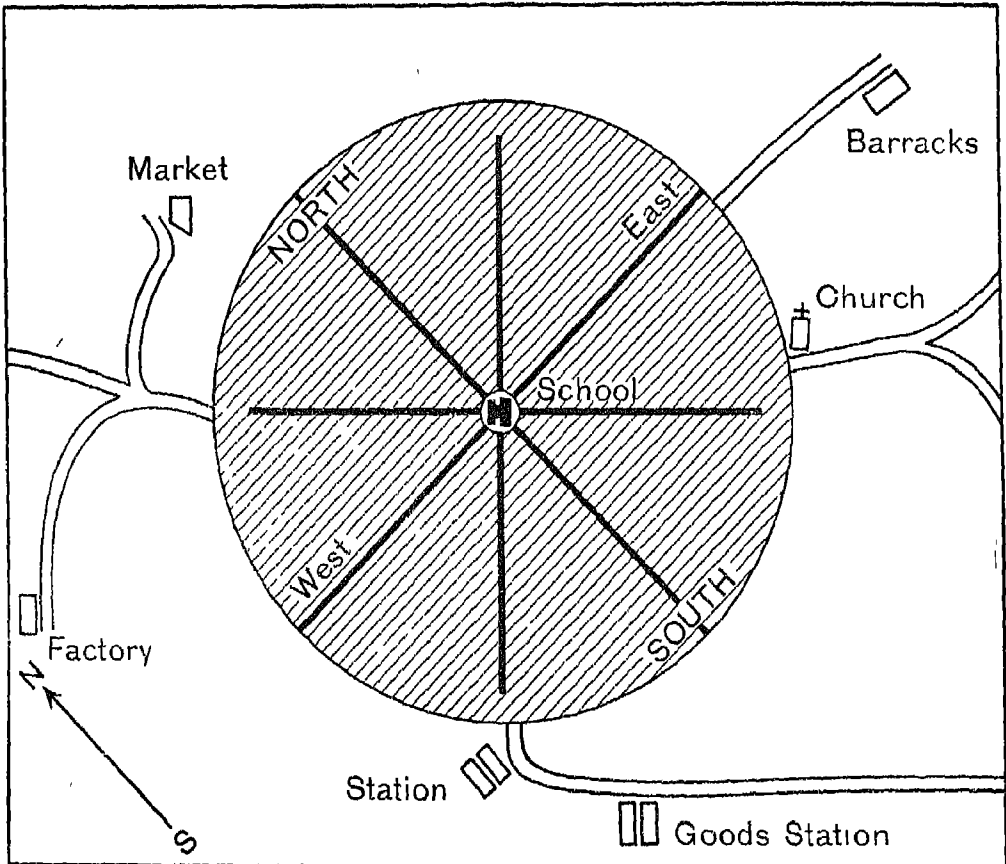
Aim.—To teach the children how to make and how to read a plan

Method.—Make a plan of the school district. Start by drawing the school boundaries as a small outline near the middle of the paper and work outwards. Estimate distances and directions and show the main roads in the vicinity, with the adjacent streets which connect them with the school Show by suitable boundaries the position and the size of any important buildings. Build up the plan step by step with the class, so that a familiarity with the point of view may be created, and ask for the

SKETCHING EXERCISES

Drawings on squared paper intended to give practice in the estimation of a ratio

names of all streets indicated It is a good system to use two boards during this lesson; one should be in a horizontal position, while the other is placed in the usual position for the class.

Let the children draw a line on the maps to show the north-south bearing. Let them use the compass cards to find out the direction from one place to another. This can be done by laying the card, properly set, on the point of the plan from which direction is being found. Obtain a few picture postcards of the district. Continue the contrast of pictures and maps which was begun in a previous lesson. Notice the width of the road. What appears to happen on the picture? (The road is narrower in the distance) Examine the map. Does this show any change in the width of the road? Look at a postcard showing a building. This is a view of the south side of the Town Hall Can you tell from the view what is to the north of the Town Hall? (No) Now look at your map Is there any building to the north of the Town Hall? (Yes) What building is it?

Teaching hints.—In this lesson we begin the making of plans of regions. Previously we could envisage the objects which were being drawn, making direct comparisons between object and plan. Now, however, we proceed to the stage where we must represent what we know is there, rather than what we see The children can point to the landmarks around the school These are our

How to Draw a Plan of the District about the School

key positions, but we must know how to reach them. Here the importance of our ideas of direction will be realised, and we shall require to know more than distance and route when we are making our plan To say that the barracks is one mile from here on the Henley Road contributes little to the progress of the work unless we have plotted this route, but to be told that this building is one mile west of the school is a material aid to making our plan. These are our primary attempts to trace on our plans the way from "here" to "not-here" In doing this we use for our aid the facts which have been collected in the earlier lessons on direction, and we prepare for the definite lessons on routes

The use of the compass card is intended to give scope for exercises in finding direction on the plan. Once the drawing has been orientated, the north–south line clearly drawn, it will not be a difficult matter to set the compass card and read directions Vary the node. Such work will lead to clearer thought in map reading and help the children to understand direction from another's point of view. Ask questions such as, "Point to the North Sea, and say in which direction you are pointing."

Make use of the class indicator again. Substitute for the arms already used, others which bear the names of local landmarks.

Aerial views should be obtained of the district, if possible, as these help considerably in the teaching of drawing plans at this stage. Subject such views to close inspection. Contrast them with ordinary views Try to show what difference would have been made if the photographer had been higher or lower when he took the views (The children will be interested in the Class Picture, No 41—*An English Village in Early Norman Times*)

A useful exercise—Place your compass cards in position on the school in the plan. Set them by the north–south line that you have drawn. (See diagram) Read off the directions of the market, the factory, the barracks, the church and the station (The market is north of the school, the barracks is east of the school, etc)

8. OUR ROUTES

PART I.

Aim.—To show the connection between the home town and other places, and to find out how we can reach the world beyond our boundary.

1. Our Roads

Method.—(*a*) *Outdoor work*—If possible take the children along a main road. Draw attention to the signposts, and make rough copies of important ones Take the children to the crossroads. Notice the direction of the main roads. Let the children name the roads. Choose a suitable part of the road where the passing vehicles may be observed Ask the children to notice the kind of traffic; both vehicles and freight. Find any information you can from the traders' vehicles, e g the merchant's trade and his address In some districts the children will notice a preponderance of certain commodities This will lead to questions of destination and route Try to find what the returning lorries carry. If there is a dock road notice the traffic which passes along it Notice, too, the road to the regional centre, and the road to the nearest port.

(*b*) *Classroom work*—Should it be impossible to make a definite school journey for the purpose of road observation, a successful lesson can often be given by asking the children to tell all they know about the roads The aim of the lesson may be achieved in this way, though the selection of useful material will need care on the part of the teacher.

Draw a large road plan on the blackboard. Show only the principal roads radiating from the town centre. Accuracy of scale and details of bends may be disregarded, so

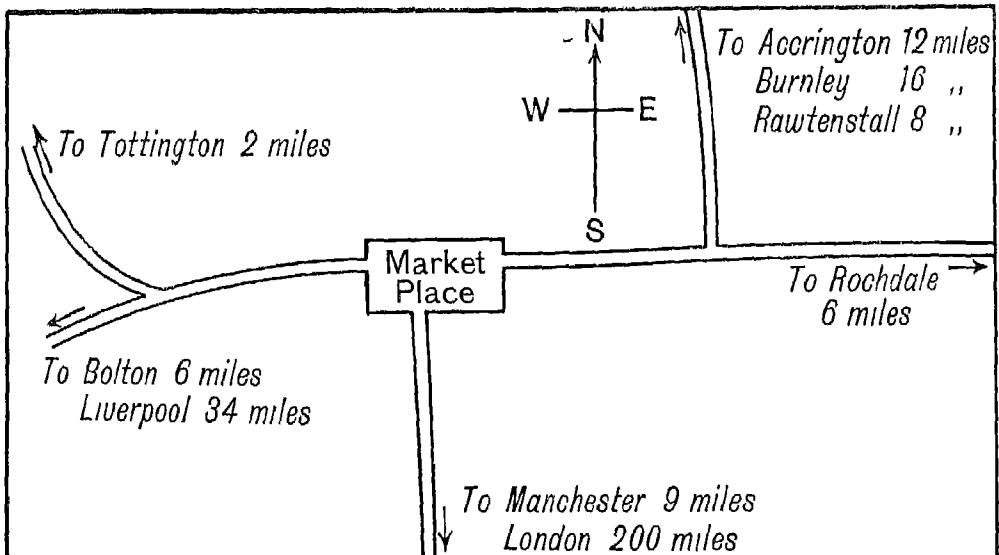
long as the plan is true in showing general directions. Orient the plan and make a north–south line Place the blackboard in the usual position before the class Ask the children questions about the plan, e g Along which road would you travel if you wanted to reach Accrington? In which direction would you travel? Ask a child to point to a certain road on the plan. Ask if anyone has seen a signpost or a milestone in that road. Make a copy of the sign on another blackboard. Do the same with the other important roads, and make suitable signs for the junctions, where these cannot be prepared from the children's answers.

Gather all the information you can about the traffic and merchandise on the roads. Tram and bus signs also furnish material for consideration

A useful exercise—Let the children copy the skeleton road map. Set them to show on their sketch map the information shown on the signposts

Teaching hints.—It is necessary to remind ourselves occasionally that the first function in the primary school geography is the answering of the question, "Where is it?" The present series of lessons on routes helps to further the work we have already done towards answering this question, and also advances a step by solving another question, "How can we get there?"

We shall find in this series that there is plenty of scope for interesting work out of school, but there should be suitable preparation before a journey of observation In every instance where work has been done outside, it is essential that a record of the journey should be made If the children are asked to do work to show what they have learned on one of these tours, let it be a sketch map or a diagram rather than a written composition.

Certain lessons in the series have been arranged in pairs. It is intended that classes which do the outdoor work will at least work the exercises from the other section In some districts observational journeys can be made along the river and the canal, and the teacher will have no difficulty in directing the attention of his class to salient points in the link between our town, and what is outside our town.

A Simple Road Map of a District

It is a good plan to obtain photographs of places in both directions along our routes. Take the opportunity to display these illustrations sequentially at intervals, and make extensions till, in time, we can leave our shores and pass on to a consideration of the ships of England and the routes they follow.

Make full use of the children's personal knowledge and their propensity for collecting things. Those children who have travelled are always willing to tell what they can remember of the places they visited and the things they saw *en route* Some of them collect foreign stamps and have a special interest in the place from which the last specimen came Others have relatives abroad, and sometimes they go to the port from which their relatives sail.

More arrows or signs can be made after each of these lessons, and the classroom indicator should be in frequent use. Change the signs often, or add a pendant extension to the arms, so that additional information may be shown

9. OUR ROUTES

PART II.

Aim.—An extension of the previous work showing another way in which the home town is linked with places outside.

2. Our Railways

Method.—(*a*) *Classroom work*—Ask the children to direct someone to the railway station. Discuss the things seen there, and ask for the names of the next stations in both directions, or, as may be the case, in every direction. Find out which other stations are close to the local line, and ask for things seen on a railway journey to a certain town Ask the children to tell the positions of any junctions which they have passed Correlate the work with that of the previous lesson by referring to the roads which lead to the towns mentioned Build up a railway map on the blackboard as the lesson proceeds Notice where the railway is single, double, or laid in numerous tracks Let the children give reasons for this. (There are more trains at the junction, near the city, or at the port, than there are at certain other places) If there is another station in the town, build up a second route on the same lines as the first Ask the children questions concerning the passengers, e g. To which place do most passengers travel? At which station would you book a ticket for ——? In which direction would you travel to reach ——? Let the children copy the sketch map showing the railway lines.

(*b*) *Outdoor work.*—Take the children to a place where they can see a railway track. Choose, preferably, a site where a goods depôt, or an important junction, can be seen Ask the children to notice the wagon signs and make sure they know the local wagons What are the signs on the "foreign" wagons? (L.M R., W.R., N E.R or S R ?) Ask for names of places from which these wagons may have come, and supplement the answers to show which wagons may have come from industrial centres. Look for special trucks, e g. timber wagons, fish vans, coal wagons, and observe any private traders' wagons which may indicate the destination or home station of the vehicles. Ask the children to name the next station that the passing train will reach Make them interested in the places beyond that point Follow the train, in imagination, to the city, the port, the colliery, the seaside, or to whichever place it is going

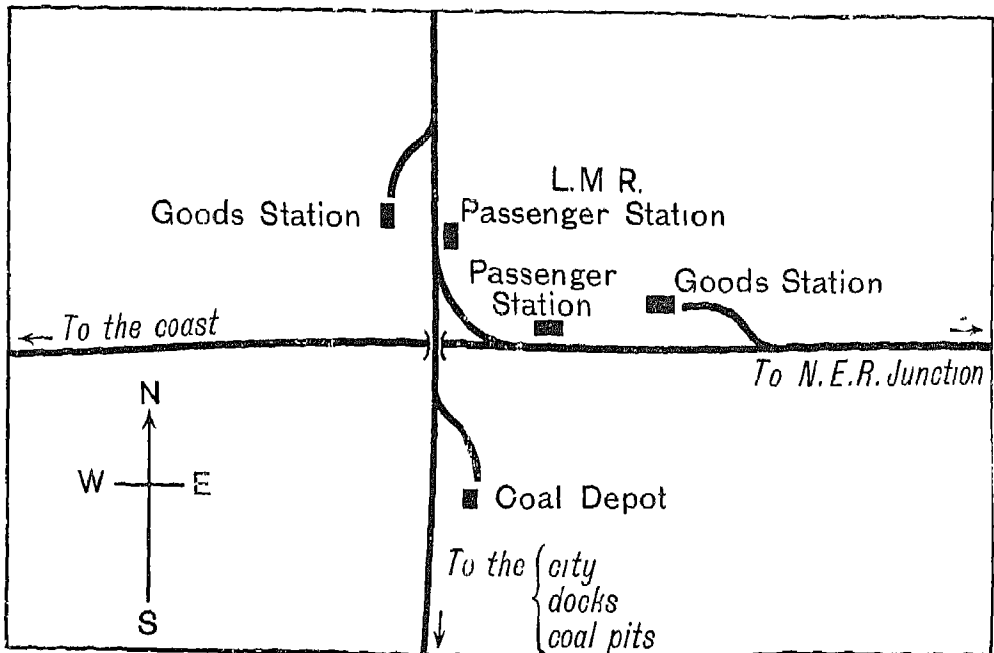
Exercise.—Let the children fill in the railway sketch map with information that may have been collected during the school journey. The facts may be written on the blackboard, but it will be a good exercise for the children to fill in the map with as little help as possible

A Railway Junction

Night time is always the busiest time at the railway junction. During the day the wagons have been unloaded at the goods stations; now they must be grouped together, those for the same destination in one siding, so that they will be ready for the goods train which will take them away. All this preparation is done by the small shunting engine which moves the trucks into the sidings, taking all those for the southward-bound train to one line, those for the northward-bound train to another line, and in this way forming the chains of wagons that will be attached to the passing goods trains.

The shunter must know into which siding he must shunt every wagon. This he finds from the wagon labels. A label may show, not only the place to which the wagon should go, but also the route by which it must be sent.

These trains of goods wagons which travel in the night are in some respects like the passenger trains which travel mainly by day There are the express goods trains, sometimes drawn by two powerful engines, which speed along with their heavy loads from one city to another. These trains do not collect the wagons from the smaller stations, for this would delay them, and they must be at the city early in the morning There are smaller trains which collect the wagons at all the stations on the route to the city. These are like the stopping passenger trains which travel daily to the city If a traveller wishes to go beyond the city he may have to change from one train to another, or perhaps from one station to another. In the same way the wagon from the local train must join the other train, but this takes place at the junction.

Sometimes, the shunter has problems to solve Wagon labels become torn and scratched, making it difficult to read destinations and routes, and he must do his best to find out where the wagons have to be sent. Perhaps he will have to go to the office at

A Simple Railway Map of a District

the station where the clerk will make enquiries, but frequently the contents of the wagon will afford him some information. At one junction he will know that a load of empty barrels is for the chemical works, a truck of sand is intended for the glass works, and a wagon load of skins must be forwarded to the tanneries at the next town.

When morning arrives the wagons are all in place in the goods yard Traders come to the station to take away their goods, or the railway lorries deliver them at the shops and factories The work at the junction is not so great as the morning goes on, and then the passenger trains begin to pass more frequently as the working people go to the city

10. OUR ROUTES

PART III.

Aim.—To show another way in which merchandise is conveyed from place to place.

3. Our Canals

Method.—Question the children on the same lines as those of the preceding lessons Are there any docks or wharves near the school? What kind of goods are handled at the wharves? From which place have they come? To which place do they go? What is the name of the canal? Name any towns through which it passes What names of towns have you seen painted on the barges? In which direction would you travel from the wharf to ——? How are the barges loaded and unloaded? How do they travel—by steam, horse or sail?

The children may be able to give sufficient information concerning the commodities carried for simple ideas of transport economy to be noted Contrast the weight of coal in a large barge with that in a merchant's van. A single horse can draw a van carrying a ton of coal, but it can pull a barge carrying twenty tons.

Exercise.—Let the children draw a sketch map similar to those which were made to show the railway routes. Let them show the wharf; the direction of places reached by the canal; the way to the docks

11. OUR ROUTES

PART IV

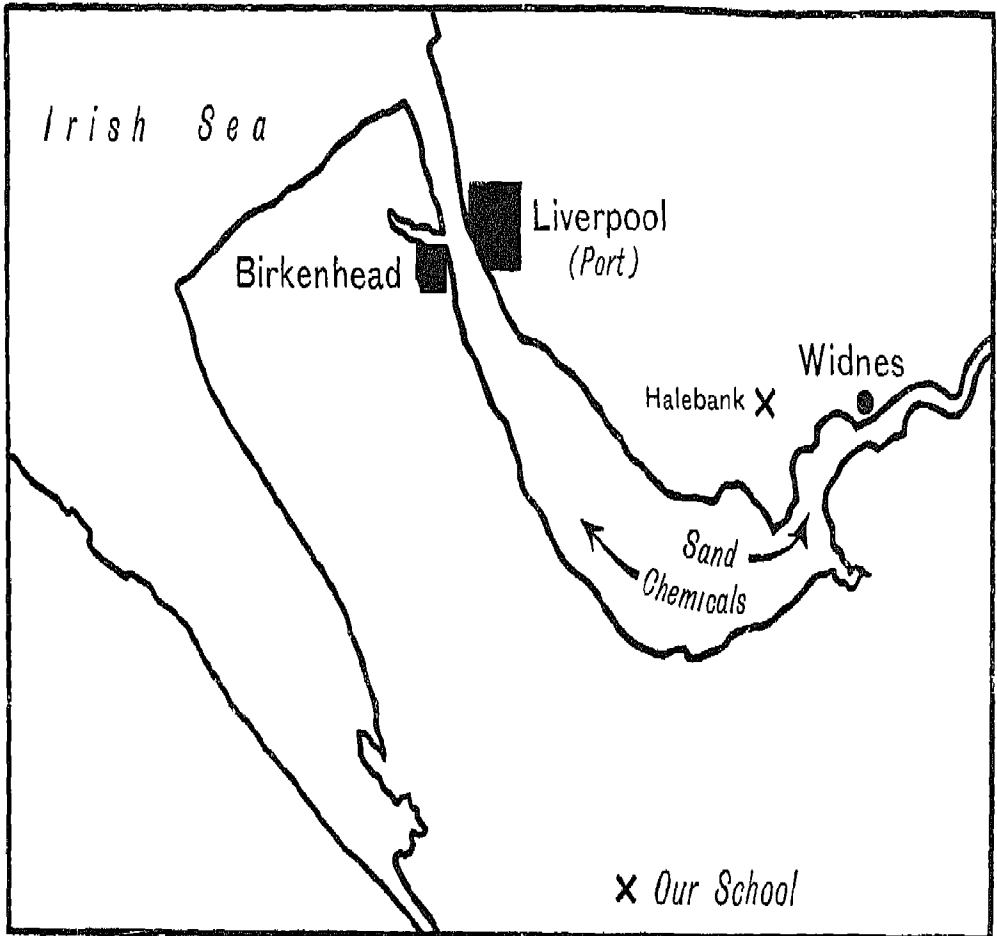
Aim.—An extension of the previous work with special reference to river transport.

4 Our Rivers

Method.—Treat the subject in almost the same way as canal transport Proceed from what is purely local and intimate, to the distant and unknown Bear in mind that we are considering the route because of its importance to us, hence local associations must be stressed

Have a prepared sketch map in front of the class Begin by discussing the river in the vicinity Keep to the subject of what the children have seen on the river. If there is a dock, or a quay, spend some time considering features of interest. Question the children freely. Remember this is the part of the lesson when they can contribute most information Later the teacher will have to tell what is seen along the routes which radiate from the port Place-names are a wonderful source of help in geography In a dock will be found some that fascinate us by the visions of distant lands which the names arouse Let us trace the route of one of the ships on its homeward voyage Follow its course on the map; mark its course on the slate globe in white chalk, and stick a label on its port of origin Someday we shall hear some stories about that part of the world.

Perhaps our river is not deep enough for large steamers to sail on Then we may watch the boats that sail past our town. These are only small vessels but they are links in the chain of international trade Trace the river above and below our town. Find out how far the little boats go in one direction and where they meet the big ships in the other. Mark what you find on the map you are using

Exercise—Draw sketch maps as in previous lessons and let the children mark on them certain given information such as is suggested in the diagram of the river Mersey.

SIMPLE SKETCH MAP OF PART OF THE RIVER MERSEY

DESCRIPTIVE GEOGRAPHY

I. CANADA—THE RED INDIANS

PICTURE REFERENCE

THE RED INDIANS IN EARLY DAYS

THE Class Picture (No. 75 in the portfolio) shows some aspects of Indian life at the present day It is illustrated on p 449 and described in the Reference Book. In the above picture are some men making bows and women stretching skins to dry in the sun On the left is a papoose in a hammock. The homes are called wigwams, and consist of three poles lashed together with hide and covered with buffalo skins. They could be quickly put up and taken down when necessary.

INTRODUCTION

The "Children's Story" in this lesson deals with the Red Indians as illustrated by Longfellow's poem of *Hiawatha* It would be advisable before beginning this story to revise some of the work already dealt with in Volume I. If the first year's course has been followed the children will know something of the Eskimos and the Lumbermen, and of the workers on the grasslands and fishing grounds of Canada. The story of

the coming of the white man should be told briefly The way has already been prepared by the story of Columbus on page 421 of this volume. The salient points of the history of Canada are here set out for the teacher's reference.

The history of the English in America begins with the expedition of John Cabot. The news of the discoveries of Columbus caused great excitement in Europe, and many expeditions were sent out. The merchants of Bristol wished to have a share in the New World, for they already carried on trade with distant Iceland. In 1497 they sent out John Cabot (a Venetian merchant who lived in Bristol) with five ships to find out what fresh lands he could King Henry VII encouraged the expedition and granted to his "well-beloved John Cabot, citizen of Venice, to Lewis, Sebastian and Santius, sonnes of the said John, full and free authority, leave and power upon theyr own proper costs and charges, to seeke out, discover and finde whatsoever isles, countries, regions or provinces of the heathen and infidels, which before this time have been unknown to all Christians."

Keeping to the north of the Spanish waters, Cabot reached the American coast in the neighbourhood of Newfoundland or Nova Scotia He found few inhabitants, but as the soil was fertile and the climate temperate, Cabot was convinced that he had discovered the north-eastern part of Asia. He was especially struck by the immense quantities of fish on the Newfoundland Banks, for his crew had only to lower baskets into the water to catch cod On his return to England, Henry VII was delighted with his success, granted him a pension of £20 a year, and advanced considerable sums of money for a second expedition But the second expedition was a failure; instead of the coveted lands of Cathay and Cipango, Cabot discovered rocky, or forest-clothed coasts, and found his way blocked by icebergs. Slowly he realised the bitter truth that he had not discovered Cathay, but some other land worthless for purposes of trade. Although many brave attempts were made to discover a North-West Passage through the Arctic Ocean, England did not take much share in voyages of discovery till another fifty years had passed

Attempts at colonisation made by Sir Humphrey Gilbert and Sir Walter Raleigh proved failures. A French explorer, Jacques Cartier, laid the foundation of Montreal The island on which a great part of Montreal now stands he called Mont Royal, and he named the country Canada from the Indian *Kanatha*. Champlain was, however, the great pioneer in the founding of French Canada. He settled French colonists in Nova Scotia in 1605, and the settlement gradually extended up the St. Lawrence valley.

In the meantime the English had settled along the Atlantic seaboard and founded the colonies of New England and Virginia. Hudson discovered the country around the bay now named after him, where fur-trading stations were set up. The fur trading proved so successful that a company was formed called the Hudson's Bay Company, which explored the northern coast of Canada, built many more trading posts, or *forts*, and became one of the great influences in the development of the country. In course of time the French and English settlers in Canada fought for the mastery of the land, and the struggle ended in a victory for the English on the Plains of Abraham in 1759, where the two leaders, Wolfe and Montcalm, both lost their lives.

The discovery of gold in the Fraser valley in 1858 caused a rush of settlers to the west of Canada.

Other than the aborigines, the peoples of Canada are mainly of British and French extraction Of the aborigines, Indians and Eskimos are still fairly numerous in certain parts of the Dominion, but their numbers are very small in comparison with those of European descent. Canada began the nineteenth century with a population of about 260,000, a number which by now

has increased to about 12,500,000. About 56 per cent. of the people are British and 28 per cent. French. The Indians form about 1 per cent. of the whole population, and the Eskimos probably much less, but no accurate estimate can be formed. Thus the bulk of the people are either of British or French stock in the proportion of two to one. Eighty-five per cent. of the people can speak English and 30 per cent can speak French. About 72 per cent of the people live on the eastern side of Canada (Quebec, Ontario and the Maritime Provinces), 22 per cent. are found in the prairie provinces (Manitoba, Saskatchewan and Alberta), and about 6 per cent. occupy British Columbia The vast areas of Yukon and the North-West Territories contain only about 24,000 people.

Mention has already been made in Volume I. of the Indians, but some further detail is here necessary The Indians of Canada number about 120,000, and a slight yearly increase is found to exist. The idea that the race is dying out is not in accordance with statistics. Doubtless, before they were brought into contact with European civilisation, the numbers were much larger than they are to-day, but a condition of stability has now been reached. The Indians are small in number near the Atlantic seaboard, but in Yukon and the North-West Territories they form almost half the total population. The system of reserves, whereby particular areas of land have been set apart solely for the use of Indians, has long been the custom in Canada. It was designed to protect them from encroachment, and to provide a sanctuary where they could develop unmolested By such treatment they now not only tend to increase in numbers, but they are steadily enlarging the area of land they cultivate, and increasing the size of their flocks and herds

In the Hudson Bay region the Indians hunt and trap over most of the wooded areas. Many are living in reserves, but they are also found in scattered bands on all the principal rivers and lakes

The Indians of the Yukon territory are of a different type from those found on the prairies. They are nomadic in their habits and very few of them live regularly in cabins or houses. Before the advent of white men they lived in wigwams built of the skins of moose or caribou, with the hairy side outwards, but in modern times they use the ordinary canvas tent They are very ingenious in providing themselves with the things needed in daily life, and live mainly on the game, fish and berries of their locality.

The Indians of the North-West Territories confine their settlements to the inland wooded region and practically to the Mackenzie basin

In the large reservations assigned to the Blackfeet tribe of Indians in southern Alberta, Red Indian life may still be seen in some of its original splendour. On ceremonial occasions the Indians wear their distinctive costumes of fur, feathers and beads, as of old. The Blackfoot wigwam is a comfortable home which can be erected or taken down with remarkable ease. The buffalo-hide walls covering pine-pole supports need no guy ropes to support them. The strong poles, lashed together at the top, form the skeleton of a cone over which the skins are stretched. When taken down the skins are packed on the pine poles and drawn by a horse to the new camping ground. Until the coming of the White Race the wheeled vehicle was unknown in America.

The Salish-speaking Indians are found in British Columbia, and there they are engaged in fishing, hunting, the lumber and canning industries, they also act as guides to tourists.

Many of the Indian people possess a high order of intelligence and readily assimilate the normal Canadian way of life. Europeans have to thank the Red Indians for moccasins, snowshoes, toboggans and hammocks, for tobacco and potatoes.

(Biographies of Cabot, Hudson, Raleigh, Drake, Smith and Wolfe will be found in Volume VI)

CHILDREN'S STORY

Hiawatha.—Here is the story of a noble American Indian chief who lived before white men had settled in many parts of Canada. In those days the Red Indians lived mainly by hunting and fishing The different tribes were constantly fighting each other. One day all the Indian tribes saw a wonderful blue smoke rising from the high red rocks near a lake in Canada. The smoke spread outwards into a snow-white cloud, which rose to the top of heaven and rolled all around, "Waving like a hand that beckons."

"The Great Spirit is smoking his pipe of peace," said the Indian prophets to their tribes. "He calls you to his council. Up and go!"

The warriors of all the tribes journeyed to the red rocks, some in their canoes down the rivers, others on foot over the plains or prairies, and they met on a meadow by the great lake. Very fierce they looked—

"With their weapons and their war-gear,
Painted like the leaves of autumn,
Painted like the sky of morning,
Wildly glaring at each other"

Then the Great Spirit counselled the Indians to give up fighting and to live as brothers,—

"'I have given you streams to fish in,
I have given you bear and bison,
I have given you roe and reindeer;
Why then will you hunt each other?'"

The Spirit went on to say that he would send them a Prophet who would guide and teach them, and if they did not listen to his teaching, the Indian tribes would perish To show that they heeded his warning, the warriors buried their tomahawks in the ground, washed the war paint from their faces, and took out their peace pipes, which were made of red rock with stems of reeds and decorated with feathers. In the pipes they smoked strips of willow bark. Finally the white cloud vanished, and all the warriors went home.

Close to the shore of the great lake stood a wigwam, or tent of deerskin, where lived a mysterious Indian woman with her beautiful daughter Wenonah. In course of time Wenonah had a little son, and soon afterwards she died Her baby boy was left to his grandmother Nokomis to bring up She called him Hiawatha, the Teacher, for this baby was the Prophet promised to the Indians by the Great Spirit.

Nokomis made Hiawatha a cradle of lime tree branches, bound together with reindeer sinews and lined with moss and rushes As he grew older she told him stories of the stars, and taught him the song of the fire-fly—

"'Wah-wah-taysee, little fire-fly,
Little, flitting, white-fire insect,
Little, dancing, white-fire creature,
Light me with your little candle,
Ere upon my bed I lay me,
Ere in sleep I close my eyelids!'"

Hiawatha loved to sit at the tent door and listen to all the sounds around him He heard the lapping of the Big-Sea-Water and the whispering of the pine trees in the dark forest behind the wigwam He was always asking questions of Nokomis One day he saw a rainbow.

"What is that, Nokomis?" he whispered, and the good Nokomis answered—

"''Tis the heaven of flowers you see there,
All the wild flowers of the forest,
All the lilies of the prairie,
When on earth they fade and perish,
Blossom in that heaven above us.'"

Gradually Hiawatha came to understand the languages of birds and animals, and talked with them when he met them. He found out the birds' secrets in building nests, and he knew how the beavers made their lodges. When still a boy, he was given a

bow made from a branch of ash tree and fitted with a deerskin cord The arrows were of oak, tipped with flint and winged with feathers. Hiawatha was very proud of his bow He went all alone into the forest with it, not heeding the birds, rabbits and squirrels which called to him to spare them, but with his thoughts fixed on the red deer, whose tracks he was following. For a long time he waited motionless in a thicket near the river, and when he rose on one knee and lifted his bow to aim at the buck trotting down the pathway, Hiawatha showed himself a perfect hunter, for he did not rustle a leaf His arrow killed the deer, and he staggered homeward under its weight. How proud was Nokomis of her grandson! She made Hiawatha a cloak from the deer's hide, she invited all the people of the village to feast on the flesh in honour of his skill, and praises of Hiawatha were in everybody's mouth

When Hiawatha grew to manhood, he proved to be the finest athlete among all the warriors of the Ojibway tribe. He was so swift of foot that—

> " He could shoot an arrow from him
> And run forward with such fleetness
> That the arrow fell behind him!"

So strong and quick was his arm, that he could shoot ten arrows upward in such a way that the tenth had left the bowstring before the first had fallen to earth. He wore mittens and moccasins of deerskin.

On one of his journeys he called at the wigwam of an arrowmaker, who belonged to the Dacotah tribe of Indians. The arrow-heads were beautifully made of polished stone, and Hiawatha admired them greatly, but he admired still more the Arrowmaker's lovely daughter. She had sparkling eyes and a voice as musical as the river which rippled past their wigwam and tumbled over rocks in the distance. Her father called her Laughing Water—Minnehaha.

When Hiawatha grew to manhood he built himself a wigwam in the forest, and lived there alone for seven days and nights of prayer and fasting, to fit himself for his work of improving the life of his people. On the first day he wandered in the woods, watching the rabbits, pheasants and pigeons, and at evening time he prayed to the Great Spirit to show him how his people could obtain food without having to depend on hunting. On the second day he roamed along by the river and saw the wild berries on which the Indians fed.

"Surely our lives should not depend on these things," he said, and prayed again for help from the Almighty He sat by the lake on the third day, and watched the perch, the herring and the great sturgeon swimming about.

"Is there not some food other than fish for my people?" he cried again, and prayed for an answer On the fourth day he lay in his wigwam weak from starvation, and a young man appeared at the door. The stranger was dressed in green and yellow garments, and green plumes waved over his golden hair.

"Hiawatha," he said, "your prayers have been heard in heaven. The Master of Life has sent me, Mondamin, the friend of man, to show you how to gain what you have prayed for. You will obtain it only by hard work and a bitter struggle. Rise, and wrestle with me."

Three nights Mondamin came and wrestled with Hiawatha. He told Hiawatha that if he held out till the fourth night, he, Hiawatha, would win the victory. He then left him to sleep. In the morning Nokomis came with food, fearing that Hiawatha would die of starvation, but he refused it and sent her away weeping. On that night he killed Mondamin and buried him lightly in the earth. Then Hiawatha went home, his fasting done Every day, however, he returned and tended Mondamin's grave. At length a small green leaf shot up, and before the end of the summer—

> " Stood the maize in all its beauty,
> With its shining robes about it."

"It is Mondamin, the friend of man," cried Hiawatha joyously. In the autumn he gathered the ripe maize cobs and gave the first feast of Mondamin, teaching his people how to grow this new food, the gift of the Great Spirit.

Hiawatha's next task was to build himself a canoe. He cut round the bark of a birch tree, just above the roots, then cleft it through from top to bottom, and stripped the bark whole from the trunk. With cedar boughs he made a framework, and bound all together with roots from the larch tree He closed the seams with resin from the fir tree, and decorated his canoe with hedgehogs' quills, stained red, blue and yellow. He put a girdle of quills round the canoe's waist, a quill necklace round the bows and two stars made of quills in front. It was a beautiful canoe, and floated on the water "like a yellow leaf in Autumn." Hiawatha sailed slowly down the river in it, and, with the help of his friends, set to work to clear the river bed of tangled roots, sandbars and dead trees. When they had finished their difficult task, the river had become from its springs to its mouth a safe pathway for the Indian people.

Many other noble deeds were done by Hiawatha He fought and slew the Evil Spirit of the marshland, who sent fevers amongst the Indians. He understood the art of healing, and wandered east and west among the tribes teaching men how to make medicine from herbs and to cure diseases Once he and his canoe were swallowed whole by a huge sturgeon, "the King of Fishes," but Hiawatha struck at its heart with his fists and killed the sturgeon. Then, when birds of prey had torn off part of the flesh, Hiawatha set himself free again, and Nokomis made a good supply of oil from the sturgeon's body.

As he walked in the forest, Hiawatha was troubled because his people did not know how to make records of the brave deeds of their warriors, or how to send messages except by word of mouth. He took the paint out of his pouch, and painted objects on the smooth bark of a birch tree, making each object stand for a word or a thought For the Spirit of Evil he painted a serpent.

> " Sun and moon and stars he painted,
> Man and beast, and fish and reptile
> For the earth he drew a straight line,
> For the sky a bow above it
> Footprints pointing towards a wigwam
> Were a sign of invitation "

Hiawatha showed the paintings to his people, and explained their meanings Then he bade them paint other pictures of their own, and so taught the Indians—

> " All the art of Picture-Writing,
> On the smooth bark of the birch tree,
> On the white skin of the reindeer,
> On the grave-posts of the village."

At length, Hiawatha told Nokomis that he wished to marry Minnehaha who lived in the lands of the Dacotahs.

"You are foolish," said Nokomis. "You should wed a girl of your own tribe. The Ojibways are often at war with the Dacotahs."

"If I marry Minnehaha, the two tribes will be united, and so the wars may cease," said Hiawatha.

He set off on his journey, and when he heard the sound of the waterfall close to Minnehaha's home, he killed a great roebuck in the forest and threw it over his shoulder. Then he went to the door of the Arrow-maker's wigwam. The old man bade him enter, and Hiawatha, going in, laid the deer at the feet of Laughing Water. Hiawatha looked tall and handsome. He had a plume of eagle feathers on his head. He wore a deerskin shirt, inwrought with beads of wampum and edged with ermine. His leggings also were of deerskin fringed with hedgehog quills, and his moccasins were thickly embroidered with beads. He looked round the wigwam, which was high and airy, "Made of deerskin dressed and

[*Reproduced by courtesy of the C P R.*

INDIANS IN FULL DRESS

whitened", and the sides of the wigwam were painted with pictures of the gods of the Dacotahs. Minnehaha sat on the ground, plaiting a mat of rushes, but she laid her work aside, murmured a welcome to Hiawatha, and fetched him food and drink. Hiawatha talked to the Arrowmaker of his pleasant home among the Ojibways, and asked for the hand of his fair daughter. The Arrowmaker answered—

"Yes, if Minnehaha wishes,
Let your heart speak, Minnehaha!"

Minnehaha loved Hiawatha, and so they went back together to Nokomis. There was a grand wedding followed by a feast. All the guests came robed in costly furs, with belts of wampum, necklaces of beads, and plumes on their heads. They feasted on sturgeon, pike, pemmican, maize cakes and wild rice, "Haunch of deer and hump of bison" Afterwards the warriors smoked their peace pipes, filled with tobacco and willow bark, while one of the guests danced a stately measure among the pine trees, gradually moving more and more swiftly till he spun round in circles and whirled the leaves and dust with him. A second guest made sweet music on his flute and sang love songs, while a third told wonderful tales of adventure. At length the wedding feast ended, and the guests departed.

This was the beginning of many happy years for the Indian tribes. Hiawatha's wise counsels brought to the land peace and plenty War clubs were buried Hunters went safely into the forest in search of deer and beaver, or fished on the rivers in their birch canoes The Indian women made sugar from the maple tree, dressed the skins of the animals and cultivated the maize fields There were happy scenes at autumn time when the young men and maidens gathered at the maize harvest and sat in a great circle under the pine trees husking the grains from the cobs. Whenever a maiden found a blood-red cob in the heap, the others shouted, "You are lucky! You shall have a handsome husband!" At this the old men sitting under the pine trees laughed and grunted One man in the tribe was an idle fellow, and when Hiawatha was away working among the other tribes, this mischief-maker persuaded the young men of the Ojibways to gamble with him, by shaking coloured dice in a wooden bowl and throwing them on the ground So he won all their treasures—belts of wampum, ermine robes, pipes and pouches—and carried the goods away to his lodge. Then he broke into Hiawatha's empty wigwam and turned everything upside down. On his return, Hiawatha found all the village in confusion He was terribly insulted and angry because of the gambling. The evil-doer had fled, but Hiawatha hunted him down and slew him

Time went on, and one and then another of Hiawatha's friends died, so that sorrow entered his heart Then, after all the years of happiness, a long, hard winter set in, longer than any they had ever known. All their food supplies were gradually eaten, and the Ojibways were faced with starvation. The snow fell, deeper and ever deeper, until the hunters could scarcely force a way out of their wigwams. From the forest all the birds and beasts had vanished. The cold and hunger weakened Minnehaha, and she fell ill with fever. Hiawatha strode through the forest on his snowshoes, vainly searching for food, and when he returned home empty-handed, his wife was dead. For seven days and nights he sat like a stone figure on the foot of her bed, his face hidden in his hands Then the warriors buried Minnehaha, and Hiawatha had to face life again without her.

"'Farewell, O my Laughing Water'," he said.

"'Soon my task will be completed,
Soon your footsteps I shall follow
To the Land of the Hereafter!'"

The spring came at last Great flocks of wild swans and geese flew overhead to the

northward; the robins and bluebirds piped; the pigeons cooed in the pine trees A traveller came to the village. Among other marvels he told the Indians that he had seen a water bigger than their Big-Sea-Water, and too bitter to drink. Over this water sailed a canoe with wings, and from its mouth came thunder and lightning. In it were a hundred warriors with their faces painted white, and hair on their chins.

"Kaw!" laughed the people. "What lies you tell us! We don't believe you!"

Hiawatha, however, did not laugh.

"It is true," he said. "I saw it in a vision. The Great Spirit has sent them hither. Let us welcome the strangers as our brothers Their towns will smoke in the valleys and their axes will ring in the woodlands. My people, if you forget my counsels, and war with each other, you will be swept away to the westward, like the flying autumn leaves."

Soon afterwards a strange canoe appeared on the shining lake, and a Paleface chief in black robes stepped on to the shore, followed by guides and companions Hiawatha stood with his hands extended aloft, in sign of welcome.

"All our town in peace awaits you," he said The Black-Robe chief held up a cross and blessed Hiawatha and his people. Then they went to Hiawatha's wigwam and feasted, and the chief men of the village bade the strangers welcome. The Black-Robe chief, in halting words, preached of Jesus Christ. The Indians listened gravely, thanked him, and departed to think over what they had heard and seen

In the evening Hiawatha softly bade farewell to old Nokomis. He went into the village and said good-bye to all the warriors and young men, advising them to protect the strangers and listen to their words of wisdom. Then he launched his birch canoe on the Big-Sea-Water and sailed away westward—"To the Land of the Hereafter."

TEACHING HINTS

1. Lake Superior (Big-Sea-Water).—The southern shore of Lake Superior, in the region between the Pictured Rocks and the Grand Sable, was the land of the Ojibways. The Pictured Rocks are sandstone bluffs, extending along the shore of Lake Superior for about five miles, and rising, in most places, vertically from the water, without any beach at the base, to a height varying from fifty to two hundred feet. They are objects of dread and grandeur, and have been very curiously excavated by the action of the lake. Large portions of their surface have been coloured by bands of brilliant hues, and from this circumstance they derive their name. The Grand Sable is a long reach of coast resembling a vast sand bank, more than 350 feet high, without a trace of vegetation.

2. Minnehaha.—This is a waterfall on a stream running into the Mississippi, between Fort Snelling and the Falls of St Anthony.

3. Calumet.—This is another name for the peace pipe, made of red rock with a reed for stem and fringed with eagle's quills. They were used at tribal councils and when treaties with the white colonists were made

4. Wampum.—Wampum consists of beads made from shells and strung for ornament, currency and tribal records They became the recognised medium of exchange with the early white settlers.

5. Pemmican.—This is a preparation of food with lean meat denuded of all fat, dried in the sun and wind, and pounded into a paste. When dry it will keep good indefinitely.

6. Bluebird.—The bluebird is a common bird of North America, allied to the thrush. Sky-blue in colour, with chestnut throat and breast, it is a little larger than a robin, and is very tame, building its nest in gardens.

7. Indian Dances.—Symbolic dancing was much practised by the Indians. The Siouan

buffalo dance, the Iroquoian corn dance and the sun dance of the plains were magico-religious. The Hopi snake dance was a rain-making rite.

8. Art lessons.—*Hiawatha* lends itself effectively to the art lessons. The picture of the child at the door of the wigwam, with the forest of pines behind and the lake at his feet, might be drawn with pastels or paints; the young Indian in his canoe on the river, and the great winter, also lend themselves to artistic treatment. Let the pupils try some picture-writing of their own, folding their drawing paper into halves or quarters, and sketching or painting pictures with meanings to them, as Hiawatha taught the Indians to do (There is a lesson on primitive writing, including that of the Indians, in Volume I, page 73, and on the same page an illustration of an Indian inscription drawn on birch bark.

9. Memory work.—(*a*) John Cabot crossed the Atlantic Ocean and discovered Canada and Newfoundland. (*b*) The Red Indians buried the hatchet as a sign of peace. (*c*) White men learned from the Indians how to smoke (*d*) Nokomis lived in a wigwam made of deerskin. (*e*) The Indians hunted red deer in the forest and bison on the prairie (*f*) Belts of wampum were treasured by the Indians (*g*) Hiawatha taught them how to grow maize for food. (*h*) The name Hiawatha means *Teacher* or *Prophet*.

10. Exercises.—(*a*) Describe a Red Indian. (*b*) What articles first made by the Indians are used by white people to-day? (*c*) How did the braves prepare for battle? (*d*) Describe the cradle in which Hiawatha slept. (*e*) What did Nokomis tell Hiawatha about the rainbow? (*f*) How do we know that Hiawatha was a good hunter? (*g*) What work did Minnehaha's father do? (*h*) What prayer did Hiawatha ask of the Master of Life? (*i*) By what name did the Indians call the maize plant? (*j*) Describe the building of Hiawatha's canoe. (*k*) What did Hiawatha do to the river? (*l*) What other good deeds were done by Hiawatha? (*m*) What was the name of Hiawatha's tribe? (*n*) Tell the story of the wedding feast. (*o*) What happened during the terrible winter? (*p*) How did Hiawatha receive the first white men?

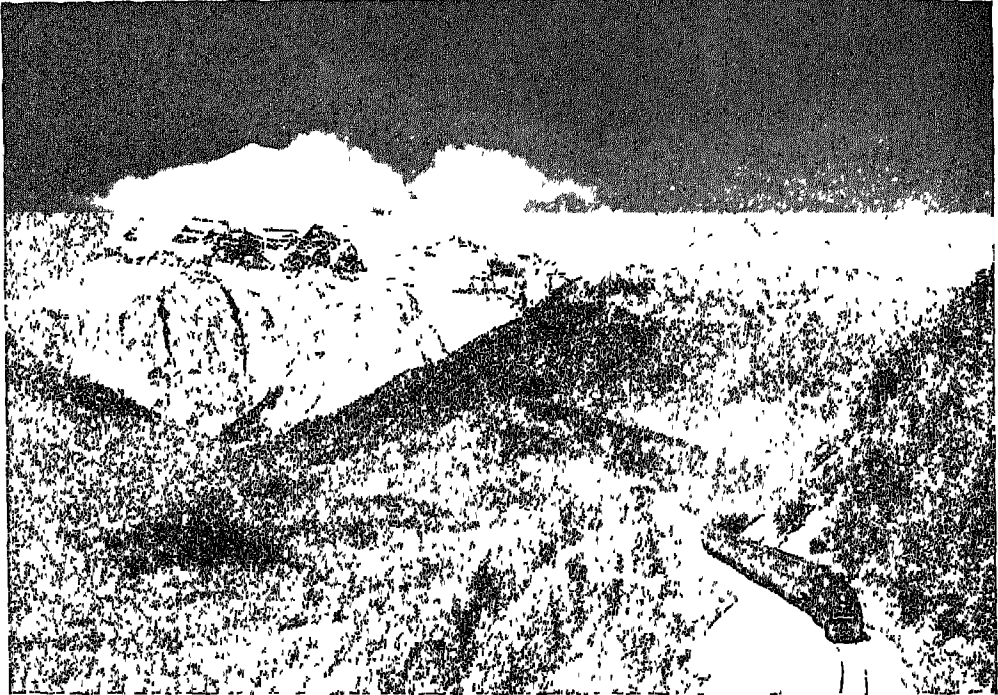
INDIAN TEPEE

Red Indians

Old-Time Chief
Hunter Calling Moose
Children of To-day
Mother and Baby on a Reservation

(Class Picture No 75 in the portfolio)

II: A TRIP ACROSS CANADA

PICTURE REFERENCE

[*By courtesy of Canadian National Railways.*

MOUNT ROBSON, B. C

THE Class Picture (No 76 in the portfolio) shows Tobogganing in Canada—see page 410. The picture is described in the Reference Book.

Mount Robson, illustrated above, is the highest peak in the height of land between British Columbia and Alberta (12,972 ft).

INTRODUCTION

Surface.—The Dominion of Canada comprises the northern half of the continent of North America, and is as large as Europe, or thirty times the size of the British Isles. It is bounded by the Arctic Ocean on the north and by the United States on the south. From the latter it is separated by an artificial boundary line, so that trade between the two countries can readily be carried on. The ports on the east coast are well situated for trading with the ports of the United States and the British Isles, and those on the west coast are equally well situated for trading with Japan, Australia and the United States

This vast country is a region of lofty mountains, high plateaux, plains of varying altitude, marshes and swamps, numerous lakes, large and small, and is also pre-

eminently a land of rivers. It may be divided into five physical provinces—Acadia, Laurentian Lowlands, Canadian Shield, Great Plains and Mountain Region.

Acadia is the Appalachian region. It comprises the three maritime provinces and the south-east of Quebec. It is hilly country, but agriculture is carried on along the coasts, in the river valleys and between ridges The famous Annapolis valley in Nova Scotia is well known for its apple orchards It produces two million barrels of apples each year, a large number of which are exported to the United Kingdom.

The *Laurentian Lowlands* extend along the valley of the St. Lawrence for 600 miles from Quebec to Lake Huron, and are bounded on the north by the Canadian Shield. They are fertile plains and level tablelands on which stand farms and orchards. The region near the shore of Lake Ontario is an important area for fruit production. At the western edge of the valley is the Niagara escarpment.

The *Canadian Shield* encloses Hudson Bay like a great "U". The surface is very irregular, but, broadly speaking, it has the conformation of a huge plain, depressed towards the centre and the north, and elevated along the southern and eastern borders. The highest portion is in the north-east, where, with an altitude of 6,000 ft, it presents a steep face to the sea. A very large number of lakes, great and small, occur, and the surface of the country is crossed by many short winding streams. Bogs, called muskegs, occur here and there, one of which, in particular, gave considerable trouble to the builders of the Canadian Pacific Railway The soil of the Shield is of very small depth, and, as a result, agriculture is not a profitable occupation.

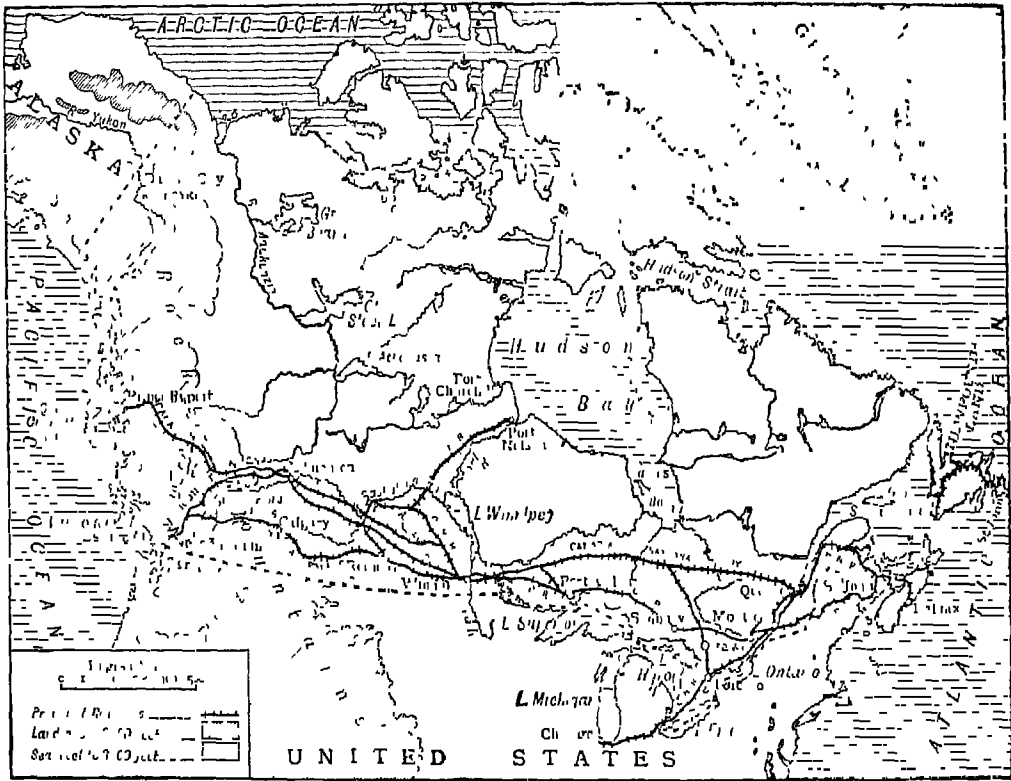
The *Great Plains* lie between the Canadian Shield and the western mountains, and stretch from the United States boundary to the Arctic shore. The southern plains have three prairie steps rising one above the other from east to west In the northern region the two western levels become merged into one. The great plains possess a soil of unsurpassed fertility and, in the south, agriculture is the outstanding occupation of the people To the north of the farming and ranching country lies the forest, and along the Arctic shore are the Barren Lands. Enormous supplies of coal have been located in Alberta, where natural gas has also been tapped, and oil is obtained in the valleys of the Peace and Mackenzie rivers.

The *Mountain Region* consists of a number of parallel ranges with deep valleys between. The eastern and highest range is called the Rockies, the western range is called the Coast Range. It runs close down to the ocean shores, and its drowned valleys form deep fiords in the coast, like the fiords of Norway and Scotland Some portions of these mountains dip beneath the sea and reappear as islands—Vancouver Island, Queen Charlotte Islands. Between the Rockies and the Coast Range lies a vast plateau system which in parts breaks into mountains. The rivers of the region flow mainly in deep valleys called canyons.

Rivers and lakes.—Canada is pre-eminently a land of rivers In the old days the Indians could travel from one end of the country to the other by canoe, having only to carry the boat for short distances from one stream to another. The outstanding rivers are the St Lawrence, Saskatchewan-Nelson, Mackenzie and Fraser. Canada has eighty rivers longer than the Thames, and numerous lakes which teem with fish. Many lake areas such as the Muskoka lakes of the Canadian Shield have become important holiday resorts. The largest lakes of Canada are the Great Lakes of the St Lawrence valley—Superior, Huron, Michigan, Erie and Ontario, which contain half the fresh water of the globe—and Lake Winnipeg in Manitoba.

The St. Lawrence is a great water highway for the cheap and rapid shipment of grain from the prairie provinces. Canals have been constructed which allow vessels to proceed from the Atlantic Ocean to the interior as far as Port Arthur and Fort William on Lake Superior, halfway across the continent. The St. Lawrence is over 2,000 miles long, Lake Superior is as large as Ireland, and Lake Erie larger than Wales. Lake Michigan is wholly within the United States, the artificial boundary line passing through the middle of the other lakes. The Niagara Falls are situated between Lakes Erie and Ontario. Many falls in the river and its tributaries supply electric power for paper, pulp and saw mills, and their currents carry logs down stream from the forest to the mills. The mouth of the St. Lawrence is frozen for a part of the year.

The Saskatchewan flows through Lake Winnipeg and is then continued as the Nelson into Hudson Bay.

The Mackenzie flows in a north-westerly direction into the Arctic Ocean, draining the Lakes of Great Slave, Great Bear and Athabasca. When the country around is frozen the river overflows and floods the land, forming an enormous frozen marsh

THE DOMINION OF CANADA

Note the two main systems of railways—the Canadian Pacific Railway and the Canadian National Railways.

The Pacific rivers, in comparison with those of the rest of Canada, are comparatively short, but they are really long and very useful. They flow through a difficult

mountain country where routes are hard to construct. The development of New Westminster and Vancouver at the mouth of the Fraser, and Prince Rupert at the mouth of the Skeena, indicates not only the value of those rivers for commerce, but also the use of their valleys for the construction of railways Many Canadian railways follow river courses, especially in the mountain districts of the west. Rivers do the preliminary work of cutting the gradient.

Water power.—As many parts of Canada have a considerable elevation above sea level it is inevitable that the rivers should generate abundant water power on their course to the sea Moreover, since many of the rivers possess falls where they descend abruptly from higher to lower levels, water power becomes one of the important natural resources of Canada Its development in recent years has contributed in a marked degree to increased Canadian production. Practically every large industrial centre throughout the Dominion is now served with hydro-electric energy. In the central provinces, which are deficient in coal supplies, water power is the mainspring of industrial progress. Near the forest areas of Ontario and Quebec the pulp and paper mills depend to a large extent on water power. Ever since the days of the early French settlers water power has been an important factor in the industrial life of the Maritime Provinces. At one time mills were common sights on the principal rivers, the flowing streams being used for water mills Although many of these are now abandoned and some have entirely disappeared, modern generating stations have risen in their stead, harnessing the water power by a new method.

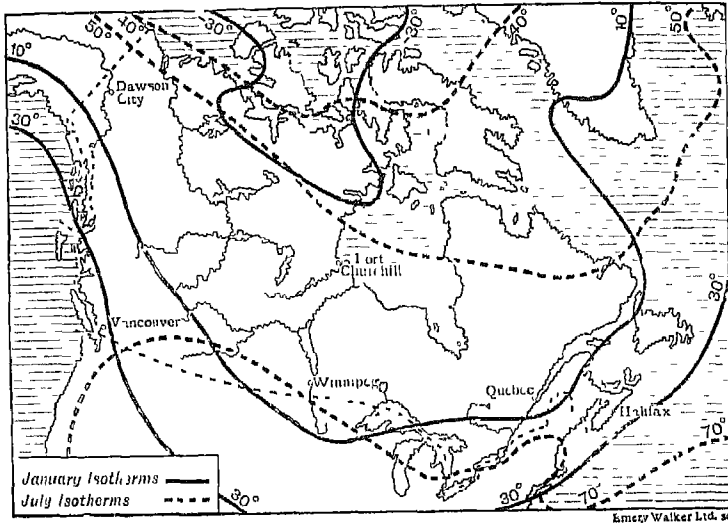
The economic importance of this "white coal" is emphasised when it is pointed out that the chief bituminous coal deposits of Canada are in the extreme west and east. The pulp and paper industry, which requires an enormous amount of power, is located for the most part in areas deficient in coal. The greatest developments in recent years have been in the west of the Dominion

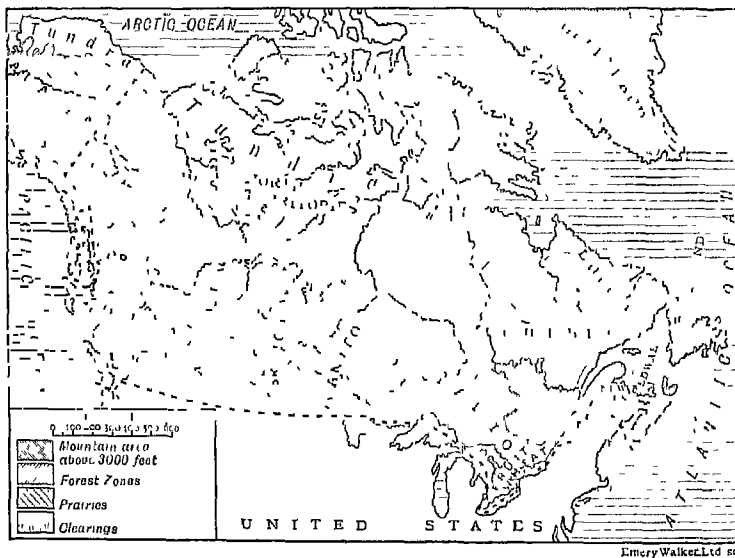
Climate—The southern parts of Canada are in the same latitude as Marseilles, and the northern islands are hidden in the everlasting ice of the Arctic regions, hence there is a great variety of climate

The climate of Canada is in the main "continental," that is, subject to extremes of heat in summer and of cold in winter On the Pacific shores, where the west winds from the sea are intercepted by the Rockies, the rainfall is very heavy throughout the year The winds moderate the temperatures, and the drift from the warm Pacific current keeps the coastal area free from ice in winter.

The winds which have been dried by their passage over the mountains are called chinook winds, and they melt the winter snows of the plains. Rain on the prairie is scanty, but it falls at the period of early summer. The range of temperature throughout the year is very great, hot summers and very cold winters being the rule At Winnipeg the range between the warmest and coldest months is 70° F. (In London it is 25°.) At Victoria on the Pacific coast it is only 21°. In northern Canada as much as 160 inches of snow (equal to 13 inches of rain) fall in a year. The snowfall of Manitoba ranges from 50 to 55 inches in the eastern and south-western districts, and from 40 to 45 inches in the west of the province Owing to the influence of the chinook winds, large areas of southern Alberta are usually bare of snow throughout the winter As there are no mountains in the middle to form a barrier against the Arctic winds, terrible blizzards frequently arise, and in the central plains the crops are apt to suffer from summer frosts.

Towards the east of Canada the rainfall becomes plentiful again The great lakes in south Ontario temper the extremes of climate there. On the whole the summers of the province are very warm, and the

winters cold. The most genial conditions are found in the lake peninsula. North of the lakes the winters are very cold and the summers cool The cold Labrador current makes winter severe in Labrador, and the bitter Arctic winds blow. The summers are remarkable for long days of sunshine, giving a rapid, though short

THE DOMINION OF CANADA—JANUARY AND JULY ISOTHERMS

Note that the important middle belt of Canada has a January temperature of 10° F and a July temperature of 70° F

THE DOMINION OF CANADA—VEGETATION

Most of the Canadians live in that part of Canada marked Clearings, which averages about 100 miles wide.

growing season. North of the Arctic Circle is the land of the midnight summer sun.

The Gulf Stream tempers the climate of the Maritime Provinces, and keeps open all the year round a number of harbours extending from Cape Breton to St John on the Bay of Fundy The summers on the whole are a little warmer than in southern England, and the rainfall is heavy. Winter temperatures in Canada vary considerably, but the weather does not necessarily get steadily colder by definite degrees as one travels farther north, for much depends upon the altitude. The presence or absence of forests, too, has also a great influence on weather conditions. The most severe cold is experienced on the treeless plains, but exceptional degrees of frost last only a few days. Zero weather is to most Canadians an exhilarating delight The sun is more often seen in the far North-West in winter time than in more humid climates. Workers often discard coats and gloves in winter, for the sun is warm in spite of the snow. The climate throughout Canada is particularly bracing and healthy.

CHILDREN'S STORY

A trip across Canada.—Joyce Wilson is a bright little London girl who writes short stories and gives them to her friends to read. They are all sorry, therefore, when she tells them that she is leaving England. Her mother, who is a widow, has decided to go out to Canada and live with her brother in Vancouver.

"Write to us, Joyce!" cry her classmates, when she bids them good-bye

Joyce and her mother sail away from Liverpool in the *Empress of Britain* on a sunny July day, and after nearly a week's voyage across the Atlantic Ocean they enter the mouth of a great river and steam slowly up it. This is the river St. Lawrence, the highway into Canada Other vessels flying strange flags pass by in the opposite direction. After several hours' sailing, there is a stir among the passengers, and fingers are pointed towards the distant spires of a city built high up on a rock. "Quebec," is the word Joyce hears, and a thrill runs through her at the thought of soon setting foot in the New World. Slowly the liner draws near the landing stage, and at last the passengers disembark. A friend awaits Joyce and her mother, and shows them round the city before they take the train across Canada Joyce knows the story of General Wolfe, who climbed the heights on which Quebec stands, and so, by taking the city, won Canada for the British Empire. Now she sees with her own eyes the bare, grey rock and the statue set up in Quebec to the honour of those who died in the fight Here, too, is one of the largest bridges in the world It is the famous Quebec Bridge by which the railway crosses the St Lawrence.

Quebec has many French settlers living in it, and in most of its beautiful old churches the services are held in the same way as in the churches of France "Quebec is very quiet now," observes their Canadian friend, "but you should see it at Christmas time! The river is frozen and all the streets are white with snow. People travel about in sleighs instead of motors, and jolly crowds go skating and tobogganing"

"What fun!" thinks Joyce, and her eyes sparkle.

Mrs. Wilson now notices that her watch is fast by the Quebec clocks, and carefully puts it right

"You will have to put it back four or five times when you travel westwards to Vancouver," says her friend "The time at Vancouver is four hours behind Quebec, because the sun rises four hours later there"

At length they go to the railway station, on which is painted C.P.R. "'R' stands for railway," says Joyce. "What does C P mean, mother?"

"Canadian Pacific," is the answer.

"Canadian Pacific Railway," repeats Joyce "Now for our trip across Canada!"

The train.—"All aboard!" shouts the conductor The big engine bell tolls and

soon the train is speeding away. Passengers who wish to watch the view sit in the observation car, which has glass sides. All the coaches have gangways running down the middle, with platforms at the ends, so that travellers can walk from one part of the train to another. On either side of the gangway are seats facing each other and providing room for four passengers. When night falls a porter comes along with mattresses and bedclothes. He pulls out the seats until they meet and form beds. He also lets down some broad shelves above the seats. Then he hangs curtains around, and soon afterwards the Wilsons are comfortably asleep. In the morning they go to the washing and dressing rooms, and meals are served in a comfortable dining-room.

The Province of Quebec.—Joyce and her mother enjoy sitting in the observation car and watching the country spin by.

"I want to write all about it to my friends in London, you see," says Joyce, "so I mustn't miss anything"

For five hours they travel past splendid fields of growing grain and orchards of rosy apples, until they approach a city, the greatest in Canada—Montreal. Here they are welcomed for a few hours by an aunt of Joyce, who takes them to see the great harbour and its two splendid bridges. Flags of all nations fly from the vessels riding at anchor, and immense buildings stand at the water's edge

"That tall building is called an elevator," Joyce is told "It is filled with wheat which will be emptied into cargo ships and carried away to all parts of the world. The building next to it contains large freezing rooms where beef and mutton are stored until wanted for shipment. Montreal is the busiest city in Canada, and its streets hum with traffic. Although it is a thousand miles from the sea, very large ships can reach it by way of the river"

At ten o'clock that night they return to the railway station, and Joyce sleepily kisses her aunt before she climbs into the train.

"Let me see—this is Tuesday," says the Canadian lady. "You will get to Vancouver in about five days' time, I expect. Send me news of your arrival, won't you?"

Ontario.—As Mrs. Wilson gets into the train, the bell clangs, and they are off again. It is too dark to see the countryside, so they go to sleep. In three hours' time Joyce wakes with a start and sits up "Mother, we've stopped!" she whispers, in a fright

"Yes, it is only another station. Lie down and go to sleep again," says Mrs. Wilson

"What place is it, then?" persists Joyce.

"Ottawa"

"Oh, I was taught at school that Ottawa is the capital of Canada," murmurs Joyce "I wish it was not night", and she falls asleep again.

Sitting in the observation car after breakfast, Mrs Wilson and Joyce fall into conversation with a Canadian fellow traveller who is also on his way to Vancouver, and is pleased to talk about his homeland to the strangers The train is climbing now to higher land. Joyce learns that the river she catches sight of now and then is not the St. Lawrence but the Ottawa, which runs into the St Lawrence just above Montreal. The Ottawa comes hurrying down from hills which they can dimly see in the distance.

"Over there are great forests," says the Canadian traveller, "and when winter comes, lumberjacks get busy cutting down the trees. In spring the river Ottawa is crowded with logs which swirl down to the sawmills and paper mills of the city of Ottawa. The mills are all run by electricity made by great wheels which are turned by the rushing water."

"I have seen a picture of some wonderful waterfalls in Canada," says Joyce "They are called the Falls of Niagara. Are they near here?"

"You want to go by ship up the St Lawrence to see Niagara," replies the

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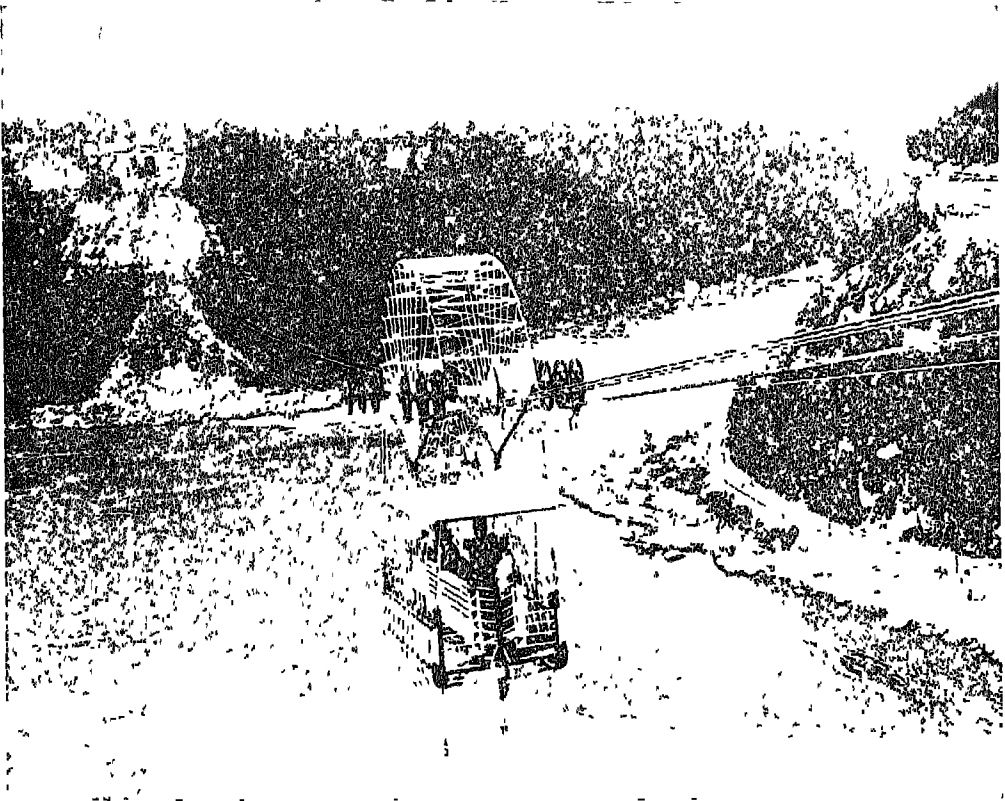

AERIAL TRAMWAY OVER WHIRLPOOL, NIAGARA

Canadian. "The river opens out into a great lake called Lake Ontario The steamer crosses the lake, and at one end of it is the short river Niagara which joins the lake with another called Lake Erie The river falls over a horse-shoe shaped rock thirty times as high as a man and forms the falls. The Niagara Falls are the most famous waterfalls in the world. They are a wonderful sight. The roar of the water is deafening and spray is flung up like clouds of steam. You would be able to get a fine view of the Falls by going on a tramway which crosses the river on strong wires Clever men have made the Falls do work for them. The water turns great wheels and makes electricity to light the streets and houses and drive machines in the cities near by"

The train is now running through one of the chief mining districts of Canada, and Joyce finds the view dull and bare They pass great pits, and heaps of slag Nickel and copper are mined in this district where the rocks are very old and hard. In course of time the forest appears again, and after several more hours of travelling, Joyce beholds a wide expanse of water, like an inland sea. It is Lake Superior. The St. Lawrence passes through five Great Lakes altogether, one of which is in the United States of America. Lake Superior is the largest of the five

"It reminds me of the seashore," cries Joyce.

There are tall cliffs and sandy beaches, and in the distance the crested waves tumble

over each other like "white horses" in the sea In the spring and autumn Lake Superior is troubled by storms as dangerous as those which ships meet in mid-ocean All night the train journeys by the shore of Lake Superior, and at breakfast time on Thursday morning halts at Port Arthur Here Joyce sees many more tall elevators by the water-side, and steamers called "lakers" loading wheat from them She has now travelled 1,200 miles from Montreal

The Prairie Provinces.—"Ding-dong" tolls the train bell, and once more they are off Joyce glues her nose to the window to see the last of Lake Superior. Soon the country begins to change. The forests dwindle and disappear. The country around is bare and rocky Joyce watches till she is tired, and then turns to her picture books for a change. All day long, whenever she looks out, she seems to see the same view over and over again. "Some parts of Canada are very lonely," thinks she.

In the evening the railway track widens out into a network of lines. Many freight trains stand in sidings, or lumber by in the opposite direction. They are carrying loads of grain, cattle and timber

"We must be coming to a junction," says watchful Joyce, "with all these big yards and sheds about"

Soon afterwards they arrive at the city of Winnipeg. The Canadian traveller tells them that Winnipeg is a great market to which is sent all the produce of the lands lying around it.

"The corn and cattle of the prairie, and the wood and furs of the forest are sent to Winnipeg," he says, "and from Winnipeg they go by train to Port Arthur or Montreal where steamers await them Winnipeg is called the 'Gateway of the Prairie.' There are big mills in the city, where some of the grain is ground into flour before being sent away"

From Winnipeg the train carries them onwards for miles through the three prairie provinces, Manitoba, Saskatchewan and Alberta, which rise in three giant steps towards the west. Joyce is up early on Friday morning to look at the prairie, and gazes out at a sea of golden grain which ripples in the breeze. Motor reapers following each other in threes are just getting busy in the mighty wheatfields. All along the railway track now they are constantly passing elevators to which the farmers bring their grain. After breakfast they halt at Regina, and among the people on the platform Joyce spies a tall man in a scarlet and blue uniform, and points him out to her fellow traveller.

"Oh, he is one of the Royal Canadian Mounted Policemen," he says "His horse is tethered near by, I suppose The head-quarters are in Ottawa. These men are called the 'watchdogs of the prairie' because they keep law and order No criminal ever escapes them"

On they go again and the grainfields seem to be endless. They are passing them for the rest of the day, hardly a tree is to be seen, and by bedtime Joyce is weary of the sight of wheat and oats The next morning she looks out and sees yet more wheatfields!

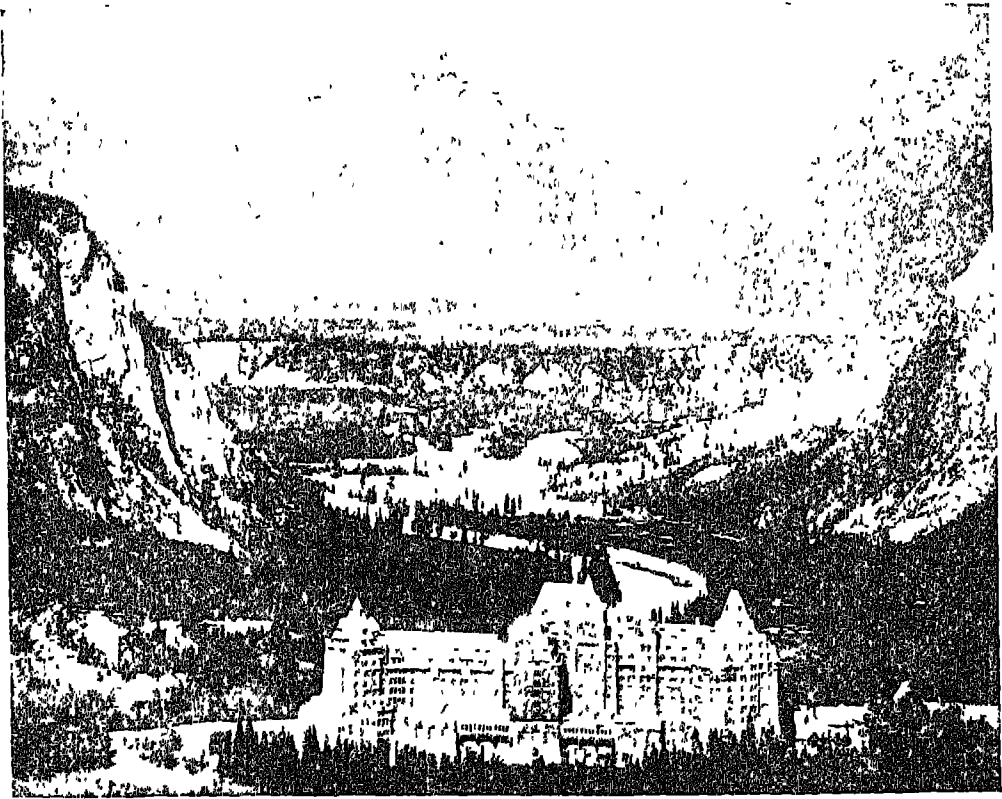
"I should think that Canada grows enough wheat to feed the whole world!" she exclaims.

After lunch, the grainfields gradually give place to great stretches of grassland dotted with horses, cattle and sheep

"We have come to cowboy land," says Joyce.

"I see you've been to the cinema," laughs the Canadian traveller. "Real cowboys don't lead such thrilling lives as film cowboys do Still, they are fine horsemen, and it is exciting to watch them 'round up' their animals for sorting. The Duke of Windsor when Prince of Wales had a cattle ranch out here, seventy miles from Calgary"

Calgary is the market town for Canadian cattle, and it is reached in the early hours of Saturday morning, when most of the passengers are asleep

The Rocky Mountains.—Leaving Calgary the train climbs in and out of green hills, and presently glimpses are caught of snow-

[Reproduced by courtesy of the C P R

THE BOW RIVER VALLEY AND THE CANADIAN PACIFIC BANFF SPRINGS HOTEL—BANFF

capped mountains Eighty miles farther on the train stops at Banff. Tourists, who travel about the world to see its beauty spots, stay at Banff and go climbing in the mountains Around Banff is an enormous National Park where no one is allowed to kill wild animals, and some of these have become quite tame. Brown bears, moose, mountain sheep, deer, elk, goats and herds of buffalo are found there A river winds round the town of Banff, and standing on the bridge that spans it the traveller beholds a wonderful view of the Rockies—"snow-capped mountains, playful cascades, many-coloured waters, bright green pastures and health-giving pines" Mountain climbers discover lovely lakes sleeping in the heart of grim mountains, their colours changing in the sunlight

British Columbia.—The train climbs to the top of the Kicking Horse Pass (so called from the figure of a great horse which can be seen in the rock on the side of the mountain), and then runs down a steep seven miles of sloping land It is now in the province of British Columbia In the valleys are enormous trees called Douglas firs. Waterfalls tumble over ledges of rock, and there are vast fields of glimmering ice, called glaciers Here the train has to wind amongst mountain chains separated by tablelands and valleys Where the descent is very steep there are side lines, called

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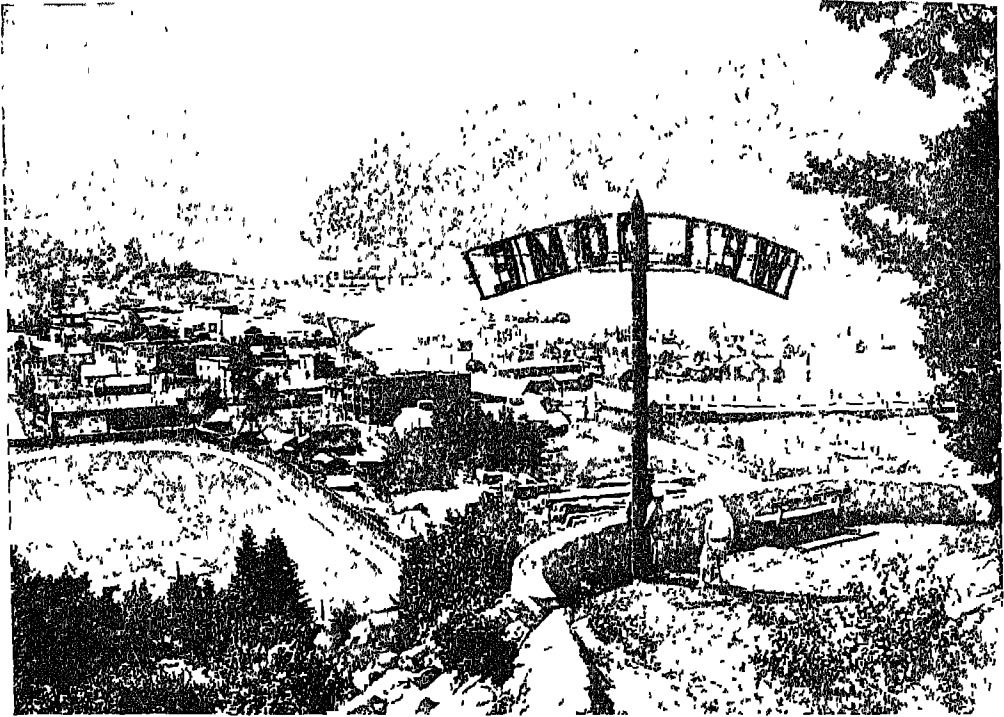

NELSON B C FROM LOOKOUT POINT

switches, which lead off from the main line and run up the mountain side When there is danger ahead, the train can be switched off the main line, and running up one of these steep tracks it soon slows down and stops. The engine carries a great search-light which lights up crag and valley at night for a long way in front Sometimes in the spring huge rocks slide down and cover the track, and therefore men have to watch it night and day. When the snowfall is very heavy the engine pushes before it a great snow plough, which sends the snow flying to the fences on both sides of the track. In some districts where masses of snow slide down the mountains, the railway tracks are covered by sheds of timber, over which the white avalanche slides into the gorge or canyon below. The carriage windows are double—two thick panes of glass separated by a space—in order to keep out the intense cold of winter and the fine prairie dust of summer They cannot be opened, so the train is ventilated in another way

On they go, still westwards along river valleys leading down to the coast, and now the train passes through orchard lands again The beautiful fruits—apples, peaches, cherries and strawberries—grown in the district around Lake Okanagan have won prizes at many exhibitions. The railway track along the river Fraser becomes dangerously narrow and passes through a gloomy deep canyon with the river thundering below. Two hundred miles more through quiet meadows brings the train to Vancouver on the sea coast, and the great continent has been crossed

It is eight o'clock on Sunday morning, and the railway journey has taken a week. The Wilsons bid farewell to the friendly fellow passenger and alight from the train

A motor car awaiting them soon carries them away through the streets of Vancouver city, with its gardens of English roses, holly trees and laurels

Thinking it all over a few days later, Joyce, pen in hand, decides that it is not easy to paint in words a picture of that vast and wonderful country, the Dominion of Canada.

TEACHING HINTS

1. Crossing the Atlantic.—The "Children's Story" in this chapter is a long one, and parts of it may need further explanation, hence nothing has been said about the ocean trip from England to Canada. If the opportunity occurs, this would form the subject of a further useful lesson. (See blackboard sketch page 491.)

2. Winter sports.—The fall of snow in certain parts of Canada is very heavy Many people are engaged in winter in clearing the streets of snow, in order to permit of the movement of trams and other vehicles. In uncleared streets sleighs are used. Young men strap on snowshoes or skis and race across fields and fences Tobogganing is very popular. The favourite sport is ice hockey, carried on under cover in large halls, the floors of which are artificially frozen The hockey players are all on skates Another famous winter sport is curling, a national Scottish pastime transplanted to Canada The game is rather like bowls, but played with circular stones on the ice, and each player carries a broom to sweep the ice clear.

3. Canadian railways.—The C P.R was completed in 1885 In the forty years following, 39,000 more miles of railway have been laid down, chiefly under the control of the government, and these are known as the Canadian National Railways There are three transcontinental lines. Canada possesses the most extensive railway system of any country of its population.

A journey of 3,000 miles by train means that one is in a travelling home. The train must provide food and sleeping accommodation, and the passengers must have some freedom of movement. Special sleeping cars, each accommodating sixteen people, are a part of the train The berths are similar to those on board ship, and can be curtained off to give privacy A special dining car is used for meals, which are of the standard provided by good hotels; a separate baggage car provides for personal luggage. The observation car may be used only as a lounge.

In all the railway routes constructed, the "line of least resistance" is taken through difficult areas. Mountain passes and river valleys are used. The route across the western mountains is a marvel of engineering skill.

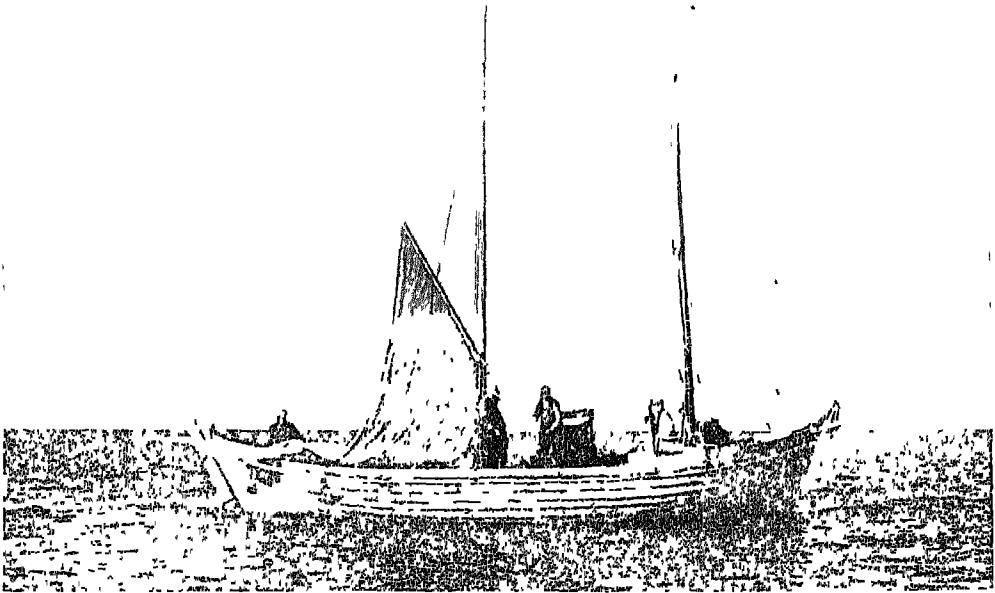
4. Maritime Provinces.—These are Nova Scotia (once called Acadia—see Longfellow's *Evangeline*), New Brunswick and Prince Edward Island. After taking the "Trip across Canada" the class might be told that when the St Lawrence is frozen, steamers call at Halifax or St. John instead of Quebec, and travellers crossing Canada take the railway from either of these towns to Montreal.

5. The clock.—The teacher might explain simply how it is that the sun rises later in the west than in the east, by holding the globe near a window which lights up the *eastern* side, and slowly revolving it towards the light. Time changes one full hour for a difference in longitude of 15°.

6. Moose.—This creature is the largest living member of the deer family. It has beautiful antlers. A fine male stands 7 ft. high, and weighs over 1,000 lb. It keeps to the more secluded parts of the forest regions. The males are often lured to destruction by hunters who imitate the cry of the female The moose can travel at great speed and noiselessly; its flesh makes good venison, and its hide is converted into leather.

7. Canyon.—This is a valley with precipitous sides, cut by a river and tributaries vertically downwards through a layer of soft rocks. The valley sides, which are not worn down owing to lack of rainfall, form steep cliffs.

8. Memory work.—(*a*) Canada is thirty times as large as the British Isles (*b*) There are hundreds of rivers and lakes in Canada. (*c*) The railways carry millions of tons of goods. (*d*) The divisions of Canada are called provinces (*e*) Many of the people of Quebec are French-Canadians. (*f*) The city of Ottawa is the capital of the Dominion of Canada. (*g*) The city of Winnipeg is called the "Gateway of the Prairies." (*h*) There are cattle ranches in Alberta. (*i*) The Douglas firs of British Columbia are some of the largest trees in the world. (*j*) Tins of cherries and peaches come from British Columbia

9. Exercises.—(*a*) How many miles does a train travel across Canada from east to west? (*b*) What does C P R mean? (*c*) What river provides a good entrance into Canada? (*d*) Tell all you can about winter sports in Canada. (*e*) Which city stands in a lumbering district? (*f*) Which is the largest of the Great Lakes? (*g*) What is an elevator? (*h*) Why has Port Arthur many great elevators? (*i*) What is grown on the prairie? (*j*) Where in Canada do cowboys live? (*k*) What is the name of the highest range of mountains in the west of Canada? (*l*) Describe what can be seen at Banff (*m*) How is the train protected from falling masses of snow? (*n*) What is a canyon? (*o*) What fish are caught in the Fraser river? (*p*) Where does the train stop on the Pacific coast? (*q*) Why is the railway called the Canadian Pacific Railway?

[*Reproduced by courtesy of the Canadian National Film Board*

A TYPICAL COD-FISHING SAILING BOAT

III. CANADIAN FISHERIES

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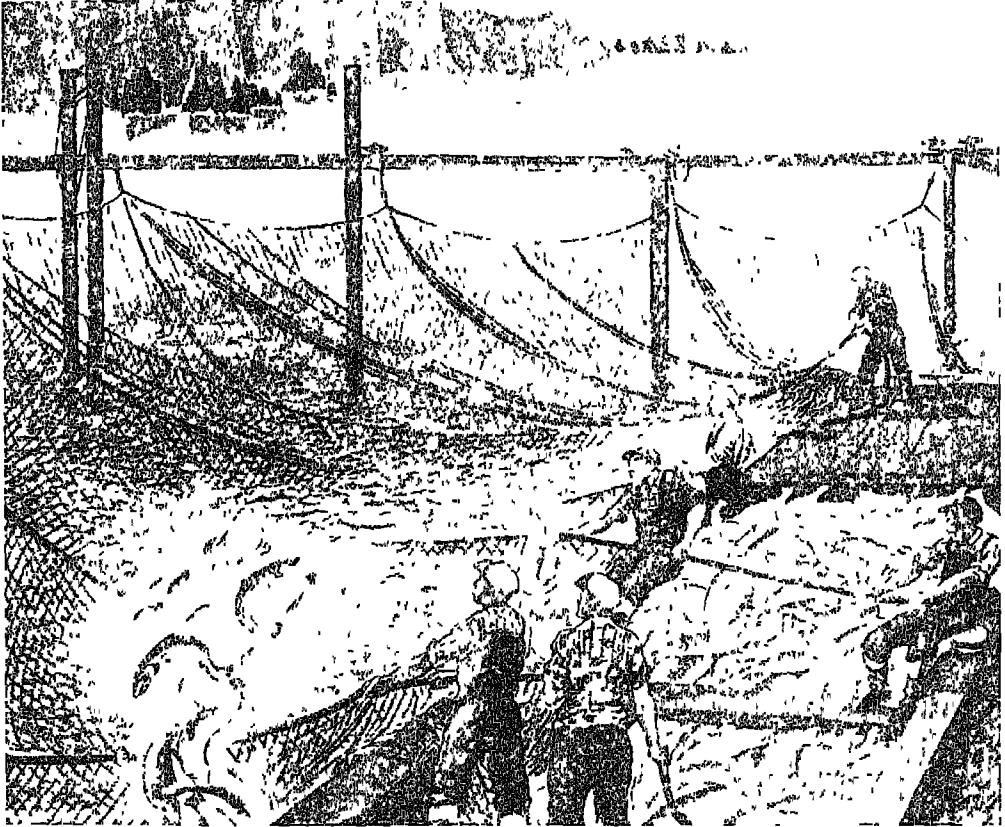

SALMON FISHING IN CANADA

(Class Picture No 77 in the portfolio)

INTRODUCTION

Newfoundland and the cod fisheries.—The island of Newfoundland stretches across the mouth of the river St. Lawrence. It was discovered in 1497 by John Cabot, who reached the island on the Feast of St John (June 24th), and so the name "St John's" has been given to the capital. Its shores are deeply indented with inlets mainly of the fiord type, thus providing an abundance of magnificent harbours which are a valuable asset to a land whose chief resource is fish.

The island has an undulating, hilly surface, and there are many rivers, lakes and marshes Thick forests grow in the

interior, on the low hills and along the banks of the streams. The trees are mainly spruce and fir

Newfoundland is so well supplied with softwood timber and water power that the pulp industry is making rapid progress. At Grand Falls are some of the finest pulp and paper mills in the world, and the town owes its existence and prosperity to the mills Power is supplied by the Exploits river, and nearly 400 tons of pulp and 200 tons of paper are produced daily. A large amount of pulp is exported to be manufactured into paper at Gravesend in England It is estimated that nearly a million trees are consumed yearly in the mills at Grand Falls Very large paper and pulp mills are also located at Corner Brook, on the west coast, where there is an output of about 400 tons of newsprint daily.

Newfoundland possesses extensive mineral wealth. The largest iron mine in the British Empire is on Bell Island in Conception Bay, one of the openings on the east coast. Copper and coal are also found.

The great importance of Newfoundland lies in its position as one of the foremost fish-producing regions in the world The Grand Banks, which are parts of a submarine plateau 200 miles from the Newfoundland coast, attract enormous quantities of fish that come to feed on the plankton brought by the cold Labrador current

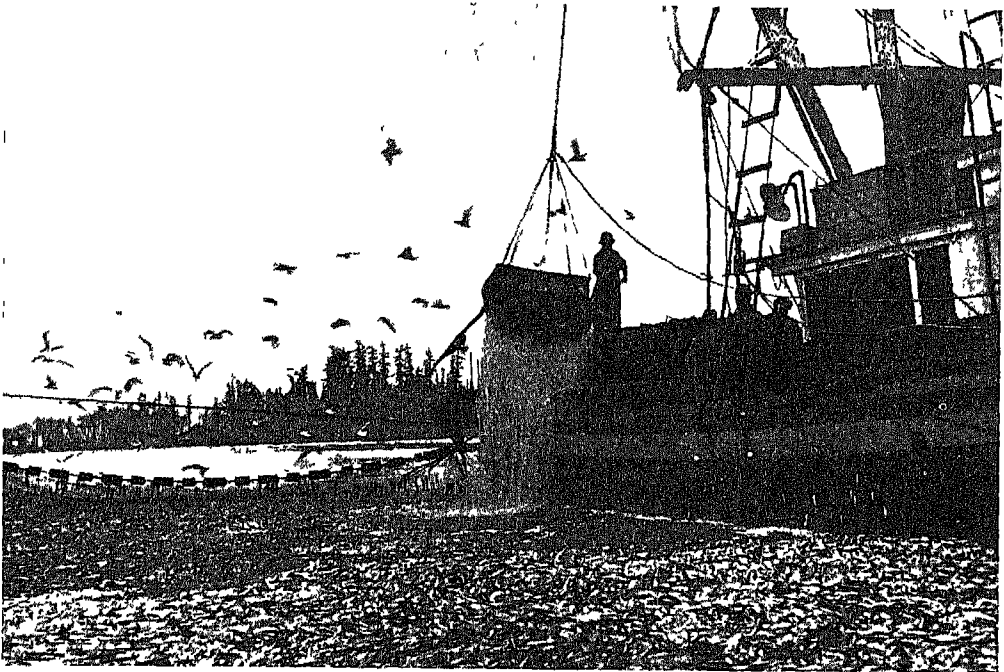
The cod fishery is the most extensive in the world There is an average annual export of about 75,000 tons of cod. The greater part of the population is engaged in some branch or other of the fisheries. At one time codfish was the national currency, payment of debts being made in kind. Many other kinds of fish are found in the waters near the island, notably halibut, haddock, turbot and herring, and the inshore and river fisheries yield salmon, lobsters, eels and mussels.

Long experience has made the Newfoundlanders expert in catching and drying cod, and the markets for their produce have been long established. The cod is obtained from three sources—near the shore, on the Banks, and near Labrador The shore fishery yields the largest catch, about 80,000 tons of cod being the average annual amount. It is essentially a summer occupation and most of the coastal towns and villages are engaged in it. The cod are caught by hooks, trawls and traps. The shore fishery begins in June and ends in October, except along the south coast, where the fishing is carried on in winter also to a small extent.

The Banks fishery receives the attention of fishermen from Europe as well as of those from the island. The Newfoundlanders visit the Banks in schooners which they anchor on the fishing grounds. The fishermen then go out in boats called dories to set the lines, which are of great length, with each hook separately baited. The day's catch is taken to the ship, where it is cleaned and salted. A great deal of waste thus occurs, since much material which could be converted into valuable fish manure is thrown back into the sea. In the Labrador fishery for cod, those taking part leave the island and settle on the coast of Labrador from June to September, returning to Newfoundland at the end of the season with their catch.

The hair seal, valued for its oil and skin, is found in large numbers on the ice floes to the north of Newfoundland during the months of March and April. The fishing fleet sails from St. John's, and some 200,000 seals are caught each year. The skins are not obtained for fur, but from them is made a valuable leather used in the manufacture of fancy leather goods.

The rivers of the west coast supply large quantities of salmon, and modern methods of freezing salmon in cold water have established a market overseas for this fish. The production of frozen salmon has already reached three million lb in a single season.

The Maritime Provinces of Canada have a convenient position and coastal outline for taking a share in the wealth of the Newfoundland fishing grounds. Nova Scotia has the best position for the fishing industry.

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HAULING UP HERRINGS IN A BRAILER OR SCOOP NET

Cod is again the chief fish caught and prepared, and Nova Scotia accounts for nearly 70 per cent. of all the cod caught and landed in Canada. The bulk of this fish comes from the Banks fishery, and Lunenburg in Nova Scotia is the principal fishing port and centre for drying cod New Brunswick takes second place for cod production and deals with about one-tenth the quantity produced by Nova Scotia.

The Atlantic coast of North America takes the first place in the world as a lobster-producing region. The lobster fisheries are especially productive between Yarmouth and Cape Sable, and in Northumberland Strait.

The herring is found along the whole 2,000 miles of the Atlantic coast of Canada, but a large part of the catch comes from a coastal strip, 35 miles in length, along Charlotte County, New Brunswick, on the Bay of Fundy. The fishery, at present, is almost wholly for the young herring, the so-called sardine, which is obtained in enormous quantities. Most of the sardines are canned and shipped all over the world

The value of fish to eastern Canada and Newfoundland may be emphasised by noting a few additional facts. The fishing grounds are the most extensive in the world, and the quality of the products obtained is exceptionally good. It is an accepted fact that fishes used for food improve in proportion to the purity and coldness of the waters from which they are taken. Judged by these standards the cod, halibut, herring and salmon must be considered of exceptional value. Further, the opportunities for carrying on the industry are wonderfully good. A remarkably long coastline provided with excellent natural harbours within easy reach of the fishing grounds is an incentive to carry on the fishing industry. The existing industry is the growth of the past half-century upon

a foundation laid more than four hundred years ago. Ultimately the industry embraces, directly and indirectly, an enormous number of people. Ship building and boat building, the making of nets, sails, ropes, fishing lines, boxes and barrels, must all be considered as occupations directly concerned with the fishing industry. Cutting timber in the forests for boxes, etc., canning and freezing fish are also among the occupations indirectly associated with fishing

St John's has been a rendezvous for fishermen of many nations since 1500, and has always been the principal port of the country. It is the oldest settlement occupied by Europeans in the New World The harbour entrance, called "The Narrows," is half a mile long and flanked on either side by cliffs 500 feet high. It leads to a perfect, landlocked harbour—a safe anchorage from any storm—a harbour which is open to navigation all the year, and is very little affected by either ice or tide.

The Atlantic cables from Ireland, 1,700 miles away, terminate at Placentia Bay Within recent years a railway has been built across the island

Salmon.—The rivers of the Pacific slope of Canada are of outstanding importance for supplying salmon. On the Fraser are some of the largest canneries of the world. The fish are caught when they come up the river to spawn The salmon come in such numbers that they almost choke the rivers, leaping as much as six feet out of the water to clear the waterfalls. They are caught in nets and salmon wheels, the latter scooping the fish up and throwing them into tanks. The variety known as the sockeye is by far the most important owing to its deep red colour and excellent texture. It is very much in demand in the British market The Skeena river is becoming more important than the Fraser for this fish. A variety, known as chum salmon, is salted and exported to the Far East Many of the employees in this fishery are Asiatics, the Chinese preponderating in the canneries, and the Indians and Japanese in the fishing operations.

As much as 2,000,000 cwt. of salmon is sometimes obtained in a year.

CHILDREN'S STORY

Cod.—Some of the hardiest people in the world are the fishermen of Newfoundland. The island of Newfoundland lies more than a hundred miles away from some famous fishing grounds called the Grand Banks. These are hills underneath the ocean Towards the Banks flows a cold stream, or current of water, from the north coast of Canada, and carried along in this current is a mass of fish food—tiny shellfish, plants and jellyfish—exactly what codfish like to eat. Therefore, millions of cod gather round the Grand Banks, where they can find abundance of food.

The fishing season, which lasts from May till October, is carried on under great difficulties The sea is often very rough, there is the danger from icebergs, which come floating southwards from the polar regions, there are often fogs which last for days together, and sometimes it is bitterly cold. The fishing schooners, or bankers, which are each manned by a crew of a dozen to twenty men, sail out of harbour and anchor in the fishing grounds Some of the schooners come from the United States and some from France, across the Atlantic Ocean. Fishing is carried on from dories, or small boats, eight or ten of which belong to each banker The dories sail away from the ships, and the two fishermen on board each dory throw out very long lines, each with two or three thousand hooks baited with shellfish and other dainties to tempt the swarms of cod on the Grand Banks After waiting some hours, the lines are hauled in, and the dories take their catches to the waiting banker You can see from the picture how the fishermen toss the cod from the boats like a farmer tossing hay on to a stack. (See Class Picture No. 73) The little dories ride the sea like birds, and fishing goes on

during biting winds and cruel weather. When the dories return to the bankers at evening time, the men slit open and clean the cod, salt them and pack them away in the ships' holds

As soon as the bankers are fully loaded they return to their home ports. Some of the cod is then packed in barrels with salt. Some is laid out on high platforms called fish flakes, which are made so that the sun and wind can pass through and dry the fish. Dried cod is called stockfish. Cod-liver oil is made from the liver, and isinglass from the bladder of the fish, while the roe is made into a rich food called caviare

More than a million tons of cod are caught off the east coast of Canada in a year, and 100,000 men are engaged in fishing Other men are also supplied with work such as shipbuilding, making nets, sails, ropes, fishing lines, boxes and barrels Timber, too, has to be cut in the forests for the boxes Altogether there are enormous numbers of people connected in some way or other with the Canadian fisheries.

Many are the tales of hardship that the fishermen tell. One evening a dory returned in a fog, carrying on board, not only the day's catch, but also two boys who had been taken up from a drifting boat. When they had eaten and rested, the boys told their story.

They said that they lived on a part of the coast near the Banks, and sometimes rowed out in a dory as far as the fishing fleet. Then, after an hour or two of fishing, they would return home. Four days ago they had strayed away from the fleet and a fog suddenly came on They at once pulled up the anchor and began rowing for the shore. After six hours' hard pulling they could see no sign of land, so knew that they had lost their way, and decided to anchor for the night where they were. To their dismay they found the water so deep that the anchor would not touch bottom!

A wind had sprung up, and the boat began to take in water and drift round The whole night long the boys did not stop rowing and bailing out water by turns, and daybreak found them weary and faint. They had a loaf soaked with salt water and a few raw herrings on board, but ate nothing all the day At night the wind dropped, and they rowed again till dawn. On the third day they were forced to eat the bread, but the salt water in it made their throats and tongues dry and swollen. That night they tried to eat the raw fish, but could not swallow any, and on the fourth day they took to the oars again, bravely determined to go on rowing till their strength was spent. All this time the fog had not cleared, but in the afternoon on the fourth day the fog drifted away and they were picked up by the fishermen in the dory.

Salmon.—Even more valuable than the cod fisheries of the Grand Banks are the rich salmon fisheries of British Columbia Canada's salmon are worth twice as much every year as Canada's cod. They are bred in snow-fed lakes and rivers, and are as fine as any salmon in the world.

After hatching, the young salmon remain in fresh water for about two years Then they leave their mountain pools and sheltered creeks and make their way to the distant sea Once in the ocean, they seem to be lost for a time As soon as they are fully grown, however, they return to their native waters. The coastline of British Columbia is cut up into many openings, and from spring to autumn each year, along 7,000 miles of this broken coastline, millions of mighty salmon appear, making for the river mouths When they come to waterfalls in the rivers, they leap sometimes as high as six feet out of the river from the lower to the higher level, and swim on until they are far inland

When the salmon are running, that is when they are coming up the river, the whole wide river is bright with the gleam of their shining scales

The salmon are caught in the mouths of the great rivers before they reach the safety of their far retreats They are then just

about to leave the ocean, well fed, healthy and in fine condition Sometimes they are captured in nets and sometimes by means of salmon wheels. These wheels, which are turned by the current, have baskets fastened to them, into which the salmon swim; they are then lifted up and thrown on to a slide, which carries them on to the bank The catch is hurried to the cannery, washed in fresh spring water, trimmed, cooked, canned and labelled in a few hours.

The work is all done by fast-moving machinery. At one end of the machine you see rows of fish moving swiftly along on an endless belt, in a few moments they are cut up by circular knives which work much like the bacon-cutting machines in a grocer's shop. On move the round slices of salmon towards the metal boxes into which they are quickly packed, and then they are passed along to be cooked by steam. In a marvellously short time the fish are ready, the tins are sealed, machines stick on the labels, and other machines pile the boxes in crates ready for despatch to England and other parts of the world

The Fraser, Skeena and Columbia rivers have the largest canning factories on their banks. These rivers are almost choked with the fish during the season A million and a half cases of salmon are turned out every year. There are several kinds, the best known being Canadian "Sockeye" and Canadian "Pink Salmon." The "Sockeye" is a beautiful red salmon, and the "Pink Salmon," though not so expensive as the other, is fine, nourishing fish.

TEACHING HINTS

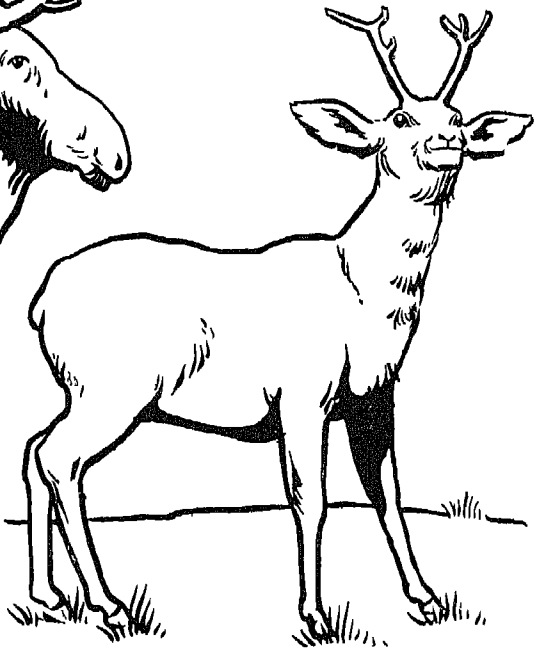
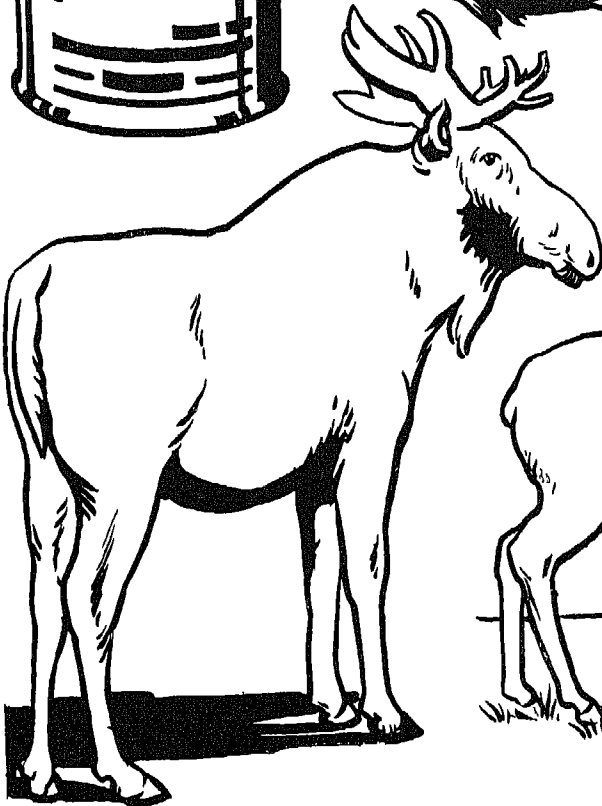
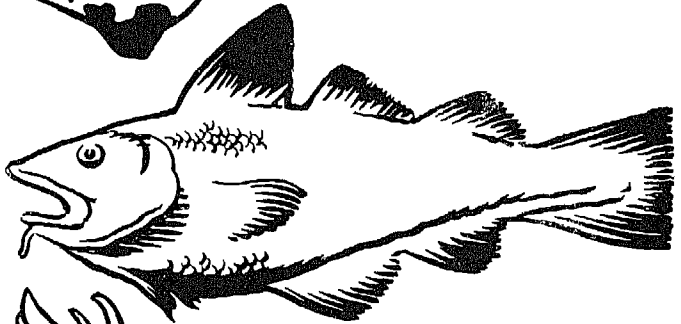
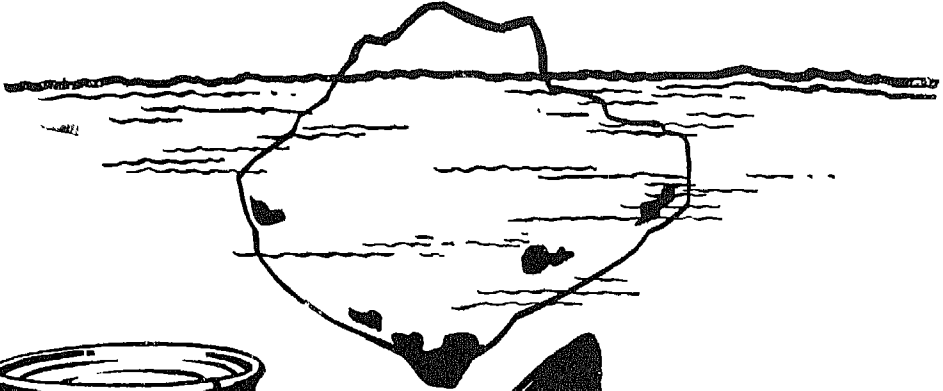
1. Fish.—Children should understand that fish can, generally speaking, be divided into freshwater and saltwater fish. The salmon partakes of the nature of both kinds. There are blackboard sketches of the salmon and cod on page 469

2. Tinned fish.—Most children will be familiar with tinned or canned salmon and lobster. Ask them to look at home or in a grocer's shop for the names of the places on the labels. They will probably find that the salmon comes from British Columbia or Alaska. It will be necessary to explain where Alaska is

3. Fogs.—When warm, moist air mixes with cold air fogs usually occur. The cold and warm ocean currents in the neighbourhood of Newfoundland flow side by side, and the air over one may move and mix with the air over the other. More vapour is then contained in the mixture than can remain in the invisible form. Some of it becomes visible as minute drops of water and forms a fog. If a bath in a closed room contains hot water on a cold day a mist develops in the room. More vapour passes into the cold air than it can contain, and the surplus becomes a visible mist of minute drops of water.

4. Labrador.—Labrador is the great peninsula lying north of the Gulf of St. Lawrence. The climate is very severe and large areas are unexplored. The Eskimos of the country are keen hunters and travel over regions of snow in winter, clad in sealskins, trapping foxes, hunting seals and reindeer. Life for them would be impossible without their sledge dogs (huskies). These animals can stand the severest cold and have a wonderful sense of direction Excitement is at the maximum when the hunters return to the villages with reindeer meat, and there is great rejoicing. During the months of August and September the Eskimos are engaged in cod fishing and they then live in tents on the coast. They depend upon the catch of cod for a sure supply of food for the winter.

5. Icebergs.—Masses of land ice which have broken away from glaciers or ice sheets are called icebergs. When a glacier reaches the sea, the ice is buoyed up by the water, or cut by wave motion, which causes masses to break off. About one-ninth of

SKETCHES FOR THE BLACKBOARD

TINNED SALMON
MOOSE

ICEBERG

COD
ROEBUCK

an iceberg is above the water, Arctic bergs have been seen 300 ft high, which indicates that 2,400 ft. were below water (See blackboard sketch, page 469)

6. Memory work.—(*a*) The Grand Banks near Newfoundland are famous for fish. (*b*) Codfish are salted or dried. (*c*) Cod-liver oil and isinglass come from the cod (*d*) Young herrings are canned and called sardines (*e*) Canned lobsters come from Canada (*f*) The salmon is the "king of freshwater fish." (*g*) Salmon leap the waterfalls of the rivers (*h*) The River Fraser in British Columbia is the home of millions of salmon. (*i*) Canadian salmon is canned or frozen and sent all over the world

7. Exercises.—(*a*) Where are the Grand Banks? (*b*) What fish are caught on the Grand Banks? (*c*) How does the Labrador current help to make this part a good home for cod? (*d*) At what time of the year is the cod-fishing season? (*e*) How are cod caught? (*f*) What is a banker? (*g*) What is a dory? (*h*) What dangers beset the fishermen? (*i*) What are fish flakes? (*j*) What name is given to dried cod? (*k*) In what part of Canada are the finest salmon caught? (*l*) Where are salmon hatched? (*m*) Tell the story of a salmon's life. (*n*) Explain how salmon are caught by wheels. (*o*) What is done with the salmon catch? (*p*) What is the colour of salmon? (*q*) What is written on the labels on mother's tins of salmon?

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A MEMBER OF THE ROYAL CANADIAN POLICE REFUELLING HIS ENGINE-POWERED SNOWPLANE

IV. CANADIAN FORESTS

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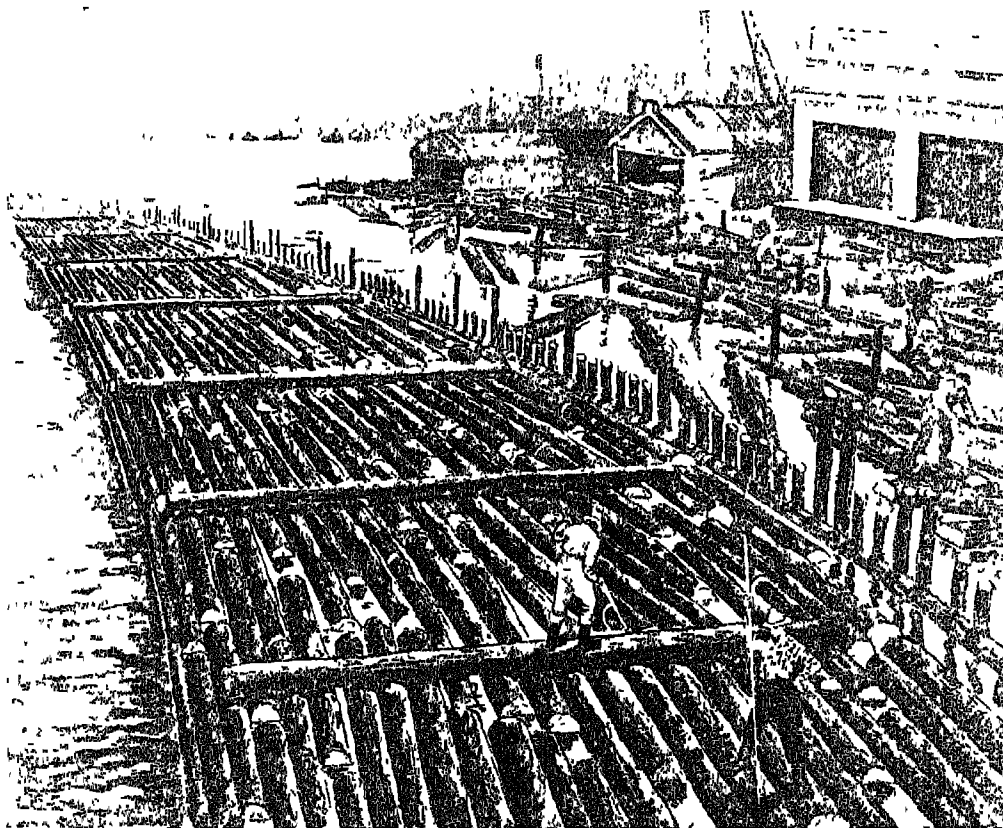

A Canadian Timber Raft

(Class Picture No 79 in the portfolio)

THE "Children's Story" deals with a "Sugaring-off" Party and the Beaver. In the "Introduction" the lumbering and paper pulp industries are described at some length in order to provide the teacher with ample material for further lessons on Canadian forests.

INTRODUCTION

The conditions of soil and climate in Canada generally appear to favour the Coniferous type of forest Notwithstanding that portions of eastern Canada contain areas of hardwoods, the greater part of Canada's forest consists of spruce, pine, balsam, Douglas fir and other softwoods The total area covered with timber is estimated at more than a million square miles The forest stretches from the Atlantic to the Pacific and is broken only by high mountains and expanses of water. In the south the forest merges into the grassy

prairies of Manitoba, Saskatchewan and Alberta, and in the north gradually disappears, the tundra of the Arctic shores taking its place. There are three main groups of the great forest,—the Cordilleran, the Great Plains and the Eastern Forests.

The Cordilleran Forest.—The wet slopes of the western mountains provide valuable trees, including the Douglas fir and red cedar, which stretch in the southern part of the belt up to an altitude of about 2,500 ft. Towards the north, and at high altitudes, the Douglas fir disappears and hemlock spruce becomes the chief tree The Douglas fir is one of the world's giant trees, specimens 350 ft. in height being abundant. In the Cordilleran Forest much timber is obtained for use in the mining industry of British Columbia and Yukon

The Forests of the Great Plains—From the United States boundary, for a distance of from 200 to 400 miles northwards, the prairie grass belt predominates, but north of this purely agricultural and pastoral belt is found the great area of forest. This stretches from Alaska to Labrador and has a width varying from 300 to 400 miles. White spruce predominates in this belt, but aspen poplar, larch, black spruce, paper birch, jack pine, and balsam poplar are also found Along the northern margin the forest merges into the sub-Arctic tundra and tree growth is found only in sheltered valleys. The cold influences on the east bring the treeless belt as far south as latitude 57° N. Near the southern part of Hudson

[Reproduced by courtesy of Canadian National Railways

STACKING LOGS FOR THE SPRING BREAK-UP, ONTARIO

Bay there are large areas of muskeg which are quite treeless, except for a little stunted black spruce.

The Eastern Forests.—Near the northern shore of Lake Erie and along the western part of Lake Ontario is a hardwood belt, and this is a continuation of the hardwood region of the eastern United States. To the north of this lies a purely agricultural and pastoral area which has been cleared of its former forest. The forest to the north of this, and stretching from the St. Lawrence to the treeless belt of Hudson Bay, is the most important forest area of Canada. White pine is the predominant tree, but spruce and hemlock are abundant. Along the northern border there is a mixture of hardwood and softwood varieties, maple and yellow birch taking the place of white pine.

The forests of the Maritime Provinces are of great importance and form part of the Acadian belt of eastern forests. Red spruce is here a very important tree, especially in Nova Scotia. It is estimated that nearly 73 per cent. of the Maritimes is forest land.

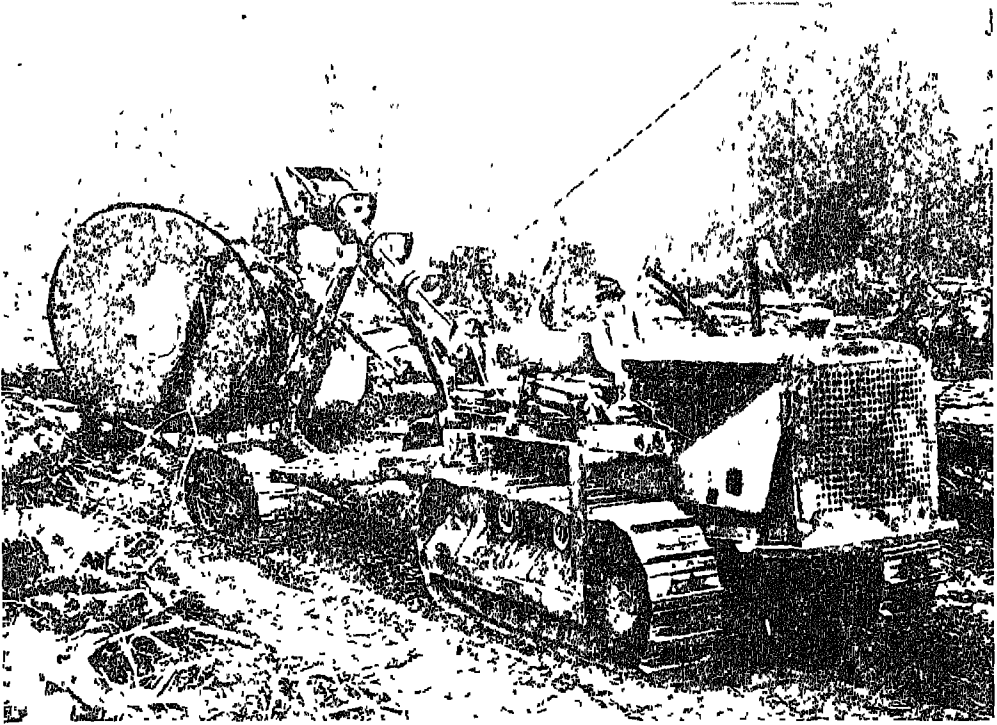
Uses of the Forest.—The forest has always played a great part in the life of the early settler and pioneer, especially in eastern Canada, providing him with building material and fuel, but opposing his efforts to grow crops. The early buildings were always of timber, usually roughly-built log huts.

Trade in timber began in New France shortly after 1650, and sawmills were established near the St. Lawrence towards the end of the seventeenth century. Shipment of lumber was made to the French West Indies during the French rule in eastern Canada, and shipbuilding made extensive use of the forest lands. The Atlantic trade in timber did not start until the beginning of the nineteenth century, but, once commenced, it increased very rapidly. The lumber industry, which began in Quebec and New Brunswick, has gradually extended into Ontario, along the Ottawa river and its tributaries to Georgian Bay and to the Lake of the Woods. In the central plains lumbering has only been carried on to meet the local demands. In the western forests lumbering has provided new species to the timber market, large rafts being floated by sea to sawmills along the coast.

Remarkable developments in the manufacture of wood pulp and paper in recent years have created a new industry in eastern Canada, which has already surpassed the preparation of lumber. To-day it is the most important manufacturing industry in Canada, giving rise to the second export of the country.

Another great use of the forest is that it is the source of fur. From the earliest times, when the Breton fishermen from the Banks traded for fur, to the present time the search for fur has played a great part in the development of Canada.

Lumbering.—Lumbering is the name given to the industry in which men are engaged in cutting down the forest trees and preparing the wood for other industries. The two branches of the work are logging, or felling the trees and transporting them to the mills, and sawmilling or cutting the logs into the required form. Lumber is the name given to marketable timber.

The preparation of lumber is the second most important industry in Canada, depending on the forest for its raw materials. Many difficulties present themselves in the search for the forest wealth, and it is not always the extensive areas of forest that are first attacked. The outstanding difficulties are the question of routes and the great bulk and weight of the material which has to be dealt with. The only natural routes of the forests are rivers, and these are local. The virgin forest grows on land which is far from level, and over which it is extremely difficult to drag heavy trees. Roads and railways are costly to construct and are of little use for the transportation of bulky tree trunks. The water link between the area of production and the region where the material is needed is always the best, and it is the

[Reproduced by courtesy of Canadian National Railways

MODERN LOG-HAULING EQUIPMENT, B.C.

water route that is used in Canada to connect the forest with the sawmill and the pulp and paper works The forest in the neighbourhood of the St. Lawrence and its tributaries, and the forest of the Maritimes, with its excellent waterways, are the regions where the lumbering industry is carried on most actively. Without the assistance of the snow of winter the industry would not have assumed its present dimensions The heavy snowfall of eastern Canada has already been mentioned, and it is the mantle of snow which covers the ground for four or five months of the year, that brings success to the industry. Inequalities of the surface during the winter are wiped out, and the forest area becomes a fairly level, hard, slippery area The rivers are frozen, and although the temperatures are very low, the atmosphere is dry, and the conditions are healthy and invigorating.

It is during the winter months that the lumberman or "lumberjack" is busy A camp is pitched where the trees are to be felled and a log shanty is erected to serve as sleeping quarters and dining room A good stove is placed in the shanty for cooking the food and warming the building, and a cook is selected to prepare the meals From dawn to sundown the trees are felled and dragged over the hard, frozen snow to the banks of the streams. The transport from the scene of felling to the river is done on sledges, wheeled vehicles being unsuited for the purpose. At the river's bank the logs are piled in stacks, and so the work goes on, day by day, during the winter. In April the snow begins to melt and the ice of the rivers to disappear With the additional water drained from the land the rivers become rushing torrents. Logging ceases, the camp breaks up, the logs are tumbled

into the streams to form great rafts, which are carried without much trouble down stream The only serious difficulty which arises is when a log jam occurs at some awkward bend of a river; but the skilled men in charge of the rafts can overcome this with comparative ease Lower down stream the rafts reach the sawmills and the paper and pulp factories, and, by a boom across the river, the further progress seawards is arrested

The lumbermen find other work during the summer months, and the forest no longer rings with the sound of their axes and saws. Thus a combination of factors has made eastern Canada one of the most important regions of the world for timber, pulp and paper It is not merely the presence of trees supplying useful timber, but the rivers and the severe winter with its heavy fall of snow are of the utmost importance. Neither must we forget the skill of the hardy Canadian, who spends his winter in isolation in Canada's eastern forest.

The Miracle of Paper.—The manufacture of pulp and paper is a comparatively recent development in Canada Paper was first manufactured in Canada about a hundred years ago, but before 1860 no wood pulp was used or produced Before that time paper was made from rags, straw, esparto grass, cotton waste and other materials. The first paper mill was established at St Andrews in Quebec in 1803, and the first wood-pulp mill at Windsor Mills, Quebec, in 1870 By 1901 there were twenty-five mills, and since that date the advance has been very rapid. The great development is due to the abundant water supplies, and to water power adjacent to extensive resources of wood suitable for conversion into pulp.

LUMBER JAM

In the mechanical process of preparing wood pulp, the barked wood is held by hydraulic pressure against the surface of a revolving grindstone, the sticks lying with their lengths parallel to the width of the stone The grindstone is constantly washed by water

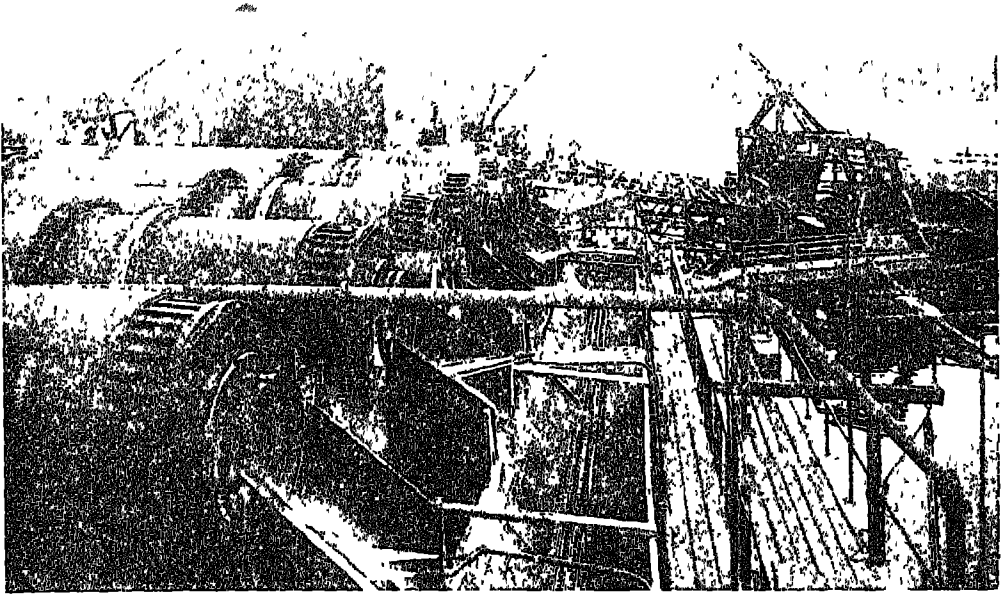
[Reproduced by courtesy of the C N R

PULPWOOD DEVELOPMENT—NEAR AMOS, QUEBEC

which carries away the pulp as it is formed. This form of pulp is used only for the cheaper kinds of paper. It contains all the wood substance, a large proportion of which is not durable.

There are several chemical processes of preparing wood pulp, but in each the essential operation is to treat finely chipped wood with chemicals. The chemical process is used for the manufacture of the better-class paper, which, although it lacks strength, can be readily finished to a good surface. Spruce is the chief timber used in the manufacture of wood pulp, forming over 80 per cent of the total.

Newsprint paper forms about 80 per cent. of the annual paper production of Canada. The output of newsprint paper is now over two million tons per annum, making Canada the largest producer of newsprint in the world

Maple sugar.—The pale yellow maple sugar, which is a popular Canadian sweetmeat, is prepared from the sweet sap of the maple tree, whose leaf is the national emblem of Canada. The tree is tapped in early spring before the foliage begins to develop. An incision is made in the tree some three feet from the ground, or two to four holes are bored Pails are then hung on the trees to receive the sap which oozes out; the pails are emptied and replaced until the buds begin to form, when the sap ceases to flow. The sap is transferred to cauldrons which are hung from branches over log fires The scum which rises to the surface during the process of heating is skimmed off, and the hot liquid is put aside to cool, when it thickens and sets to a delicious sugary toffee. The average yield from a tree is four pounds of sugar. A more modern method of treating the maple sap is to convey it by pipes to an evaporating house. As well as for the production of sugar, the sap may be heated to the consistency of syrup, which is used in American households as we use treacle. The whole work of collecting and purifying the maple sap is carried on

[Reproduced by courtesy of the C N R.

WOOD BARKERS AND SPRAYERS, LAURENTIDE PULP AND PAPER MILLS—QUEBEC

by farmers, who themselves use much of the product for culinary purposes.

The Fur Trade.—Reference has been made to the quest for fur in the early history of the Dominion Fur and fish undoubtedly were the incentives for Europeans to visit the northern part of America and to try and effect a settlement in the country. The old forts established by the Hudson's Bay Company and the early trappers have lost much of their importance as collecting and trading stations, but many have become firmly established and have prospered in other directions than fur. The need for the commodity is, however, greater to-day than it was centuries ago and far greater quantities are obtained A change of method has been brought about in a more advanced age. The railway has revolutionised conditions Edmonton, a railway centre near the southern edge of the forest of Alberta, has become a large collecting centre. Winnipeg, the great railway town of the central plains, is now the collecting and distributing point of the Hudson's Bay Company, though Moose Factory is visited once a year, as formerly, by a vessel from London. The furs of the Ottawa valley, and the Quebec forest near by, are collected at Montreal for shipment. Montreal has become, in fact, the great international fur market. Thus the three great fur markets of Canada are now on the line of railway across the continent in the south of Canada, whereas formerly the centres for collecting the commodity were in the vicinity of Hudson Bay

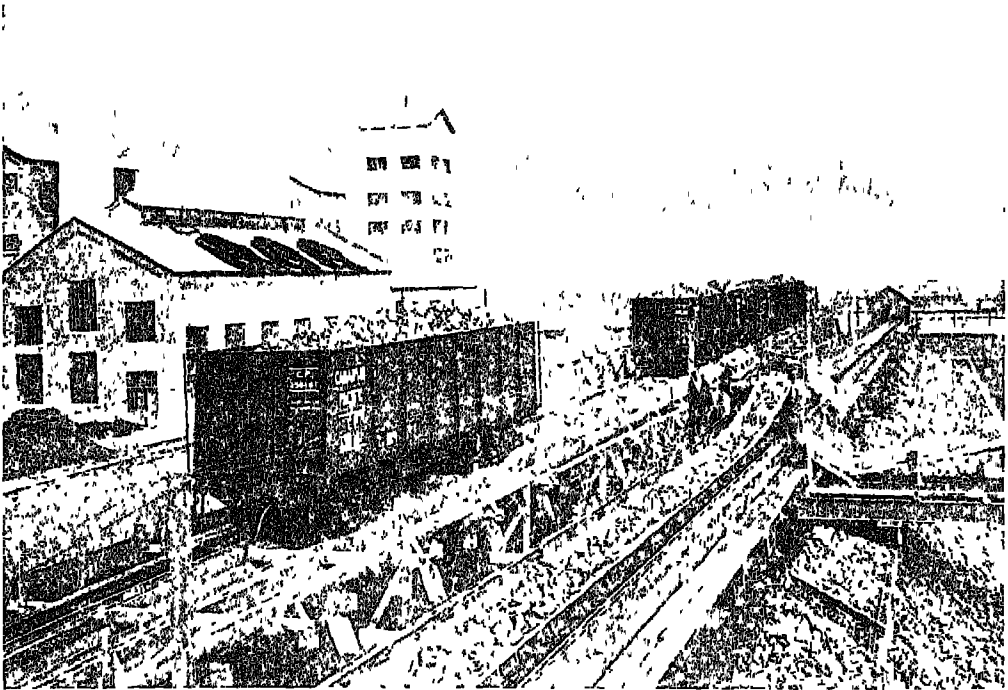
The fur-bearing animals have been hunted and killed for their peltries for hundreds of years, but few species, if any, have been exterminated. The most valuable of the animals are the beaver, otter, marten, mink,

[*Reproduced by courtesy of Canada House.*

COLLECTING MAPLE SAP

Where pipe lines are not used in a maple tree bush the pails of sap are emptied into a large tank and carried to the evaporator house on a sleigh drawn by a team of horses

muskrat, bear, wolf, fox, skunk and ermine. For a long time the beaver was the most prized fur, and a beaver skin was made a unit of value for all barter. For some years the muskrat was the fur most in demand, and as many as a million pelts were taken in the neighbourhood of the Saskatchewan river in a single season The beaver is not found farther north than the limit of the poplar and birch, the barks of which are its favourite food. Polar bears and white and blue foxes are restricted to the more northerly regions, and the muskrat prefers swampy regions All the other varieties are widely distributed.

In the Maritimes and Quebec special attention is now paid to the rearing of fur-bearing animals in captivity, and fur farms have been established. Prince Edward Island holds the premier position in this industry. Silver fox farms predominate; but a few farms raise the beaver, mink and muskrat. The following tables may be of interest

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UNLOADING SUGAR BEET AT CALGARY

Province	*Number of Pelts in One Year.*
Alberta	1,775,000
Ontario	732,000
Saskatchewan	560,000
Manitoba	365,000
Quebec	297,000
British Columbia	212,000
N.-W. Territories	204,000

Kind of Animal.	*Number of Pelts in One Year.*
Muskrat	1,954,000
Ermine	482,000
Mink	157,000
Skunk	130,000
Beaver	112,000

CHILDREN'S STORY

Maple Sugar.—John was a little Canadian boy who lived in the town of Hamilton, which stands on Lake Ontario. One day his father brought him a packet of maple sugar. Maple sugar is very like the rough yellow sugar we find sticking to the pieces of candied orange and lemon peel that we cut up to put into cakes. It is a favourite sweet in Canada, and as well known there as barley sugar is in England.

"Where does maple sugar come from?" asked John, as he thoughtfully crunched a lump of it.

"It is made from the sweet juice of the maple tree," replied his father. "When I was a boy I lived in a big farmhouse near the forest, and I used to see the maple sugar made every year. Each March, which is the sugar-making season, my father would allow us children to have what we called a 'sugaring-off' party.

"In the morning before the party my father's men would go into the forest and bore two or three holes in the maple trees

about three feet away from the ground Then they used to hang pails under the holes to catch the sticky juice which dripped out from them. All day long the juice dripped into the buckets.

"Our friends came to our house for the party in the late afternoon, when it was already growing dark. We used to eat a big meal together, and then wrap up warmly in our 'mitts' and 'tuques' and set off for the maple wood.

"When we came to the trees which the men had bored, we started to gather wood and make a huge bonfire. Then we poured the sticky sap from the pails on the trees into an iron pot, taking care to put the pails back again, so that the sap should not be wasted

"We hung the iron pot from a branch over the log fire, as Scouts do in England As the juice grew hot, a scum formed on it like the scum which forms on jam when mother is boiling it over the fire. We scraped off the scum with a ladle as it formed, leaving the juice a clear syrup When the syrup had boiled and thickened a little over the fire, we seized the pot and poured the hot liquid on to the snow. The coldness of the snow made the syrup set at once, and it turned to a delicious sugary toffee.

"Then came the fun. Everyone scrambled to get the first pieces of sugar, fingers were burnt, and there was friendly fighting and snowballing among the boys When every one had some sugar, we would make up the fire and sit round it, singing songs and telling ghost stories till we were sent home to bed."

The Beaver.—Long before the axes of lumberjacks were heard in the Canadian forests, the Red Indians used to wander amongst the trees hunting and trapping fur-bearing animals, for in the cold forests of North America live countless wild creatures. There are the brown, black and grizzly bears; the beaver, otter, ermine, fox, sable, muskrat, wolf, skunk, marten and mink. Many of these animals have skins of great value for winter clothing, and the Hudson's Bay Company set up stations to trade in furs with the trappers. Some of

A Beaver Dam

these stations have grown into cities, and one of them, whose name was formerly Fort Garry, is now the great city of Winnipeg.

You have already been told about the life of a trapper in the cold forests, and how he obtains the furs which hang in shop windows One of the most beautiful and expensive is the fur of the beaver. This animal is about three feet long, of which length nearly one-third is tail. He makes his home in the water, and for this reason his hind feet are webbed like those of a duck. He also has peculiar nostrils which he can close when he dives, so that the water is kept out. He has a broad flat tail shaped like a paddle and covered with scales The rest of his body is covered with soft, reddish-brown fur. This fur is much prized by men and women for making into coats, gloves, hats and other clothing.

The most wonderful thing about the beaver is the way in which he makes his home. If you are walking along the bank of a stream in Canada, and come to a place where beavers have made their home, you will see a remarkable sight The stream, which up till now has been flowing along quietly, has suddenly become a deep pool How has this happened? A great dam of twigs, earth and stones has been built across the stream from one bank to the other. This dam prevents the water from moving away quickly, so that it collects and forms a pool behind the dam. Who have made this dam across the stream? The clever beavers themselves

Why have they made it? The beavers, as you have heard, spend much of their time in the water. Now an ordinary stream becomes shallow in the summer weather when there is not much rain, and the beavers find that then there is too little water for their comfort Again, in rainy weather the stream is swollen and rushes down very fast, and the beavers find that the swirling water washes away their homes. What they need is a small lake of still deep water, and they set to work to make it by building a dam across the stream to hold up the water.

How do the beavers build their dam? Let us suppose that a colony of beavers decides to move. In early summer they leave their old home and set out along the river bank to look for a new one. They travel along till they find a place which takes their fancy. There they set to work to build their dam. Now we see how clever the beavers are They know what kind of building will be best If the stream flows gently they make the dam of branches and twigs These do not altogether stop the water from flowing, but make it trickle slowly through them as if they were a sieve. When the stream flows swiftly, however, the dam must be strong to stand against it, and in that case it is made chiefly of mud and stones packed firmly together and strengthened with logs

Whatever kind of dam they choose to make the beavers have much work before them, and they start at once. The first thing is to cut down the trees which they will need It is wonderful to think that an animal with no tools but its teeth and claws can cut down a tree. Yet if you go into the woods beside a beaver's dam you will find many tree stumps which show that the beavers have been at their work. To fell a tree a beaver sets to work with its strong sharp teeth to nibble through the trunk about a foot above the ground. Round and round the trunk it goes, chipping off little pieces of wood till at last only a tiny thickness is left to hold the tree upright. Then the beaver can do no more. He must wait till the wind blows the tree down. He is such a skilful woodcutter, that when the tree does fall, it generally comes down on the side nearest to the water.

As soon as it has fallen, the beaver strips off the bark and the branches, and cuts up the trunk into pieces All these pieces have next to be carried down to the water's edge. When they are small enough, the beaver carries them there in his mouth. The larger pieces he rolls down with his paws, pushing himself along by means of his broad flat tail Sometimes, if the ground is very

rough, and the tree lies far from the stream, he will dig a canal from the water to the trunk. The water runs up the canal, and the beaver pushes the trunk into it, and it floats down to the stream

Every log, branch or twig that he can find or cut down is brought to the dam, and pushed and patted into place by his paws. He strengthens the dam with stones and with mud which he carries in his paws, holding them pressed together under his chin.

At last the dam is finished; but much still remains to be done. The beavers have now to build themselves houses, or *lodges* as they are called These are made of mud, branches and twigs well patted together They are built either in the bank beside the pool made by the dam, or on an island in the middle of the pool. If you were to look for the door of a beaver's lodge you would not find it, for it is under the water. When a beaver goes home, he dives into the pool and swims to his front door, which is a hole in the bank underneath the water. He goes through it into a dark tunnel which runs up through the bank. At the end of it he comes into a cosy room with a round ceiling and walls neatly lined with mud Here the beaver family live—father, mother and babies all together No enemy can reach them in their snug house, and if they wish to feed, they can slip down their tunnel into the water without danger of being seen by any creature on the bank

When the dam and the lodges are finished, there remains only one final piece of work to be done. This is the filling of the beaver's winter larder. The beaver's food is water-lilies and the roots of other water plants; he also gnaws bark and twigs. In summer he can get this food when he pleases, but he knows that in winter the pond will be frozen over, so he lays in a store of juicy roots and pieces of bark, fastening them down under water so that they will not float away

The beaver begins his building late in the summer, usually about August, so that when the first frosts come everything is ready for the winter The dam is strong and firm, the lodges are snug and water-tight, and the larders are full. When the winter cold comes, it freezes everything hard and stiff, and the beaver can live safely through the winter in his cosy house.

TEACHING HINTS

1. Maple.—There is a blackboard sketch of a maple leaf in Volume I., page 407

2. Sugar.—It would be advisable to revise the lesson on sugar given in Volume I., page 473. Children should understand that the two chief sources of sugar are the sugar cane and the sugar beet. Probably some of the children will have seen sap oozing from a tree such as the peach

3. Clothes.—In cold weather Canadians wear *mitts* (gloves without fingers), a *tuque* or knitted cap, moccasins and thick woollen stockings, and a heavy *mackinaw* or frieze jacket which is worn over a jersey.

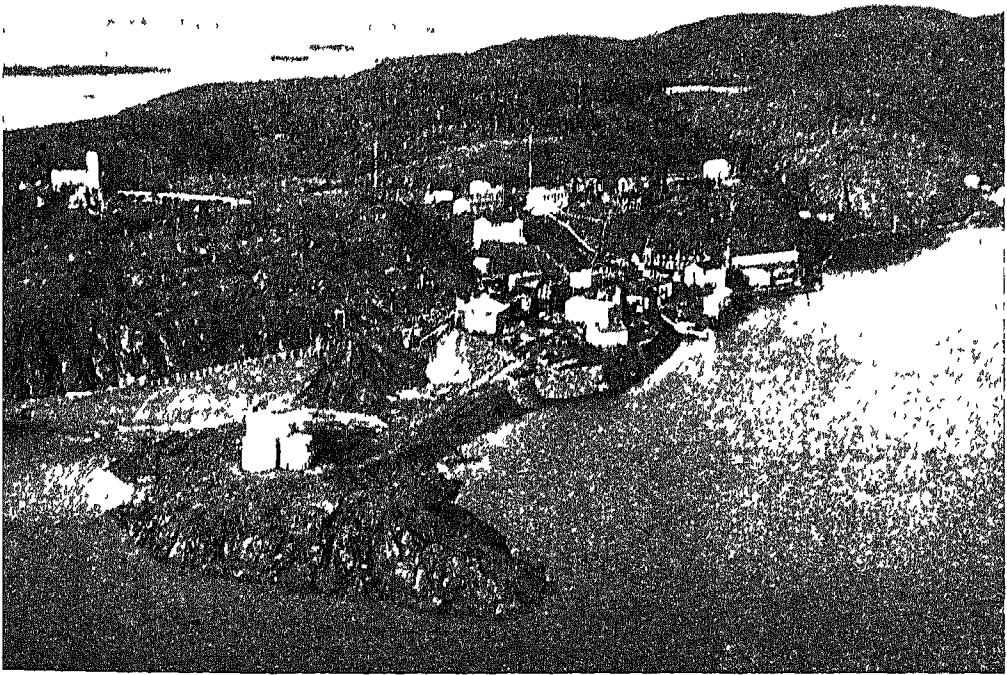
4. Pelt.—A skin or hide with the wool or fur attached.

5. Forts.—The early collecting stations for the fur were often liable to attack from Indians or French rivals. It was therefore necessary that they should be surrounded by some form of protection.

6. Muskrat.—The outstanding importance of this animal as a source of fur should be noticed in the table given. The hair resembles that of a beaver and is of a dark tint. The animals live in streams and pools, and are most active at night, spending the day in their burrows. Their fur is called musquash.

7. The seal.—Seals are animals adapted for marine life. The limbs are converted into paddles. The one or two (generally one) young seals are born on land, and are

at first white. Seals are found in all seas except those of the tropics, but abound chiefly in Arctic and Antarctic regions There are three families—hair seals or true seals, fur seals or sea lions, and walruses. The common seal, which has a yellowish coat spotted with brown, lives around Scotland, Ireland and Wales, and haunts the mouths of salmon rivers, eating the fish The harp seal or Greenland seal is hunted off Newfoundland, and has a light grey coat with black crescents extending from the shoulders to the thighs. The face also is black There are also the ringed seal, hunted by the Eskimos, the great grey seal, the hooded seal which lives near Iceland and has an inflatable sac about a foot long on the face, and the monk seal of the Mediterranean The sea lion has a more distinct neck than a true seal, small external ears and a close woolly fur under the coarse grey hairs. In addition, the hind limbs are free from the tail and can be turned forward so as to be used on land The sea lion is the source of the highly prized sealskin of commerce.

8. Memory work.—(The Memory Work includes matter dealing with the forests, as the teacher will probably like to revise these lessons which were given in Volume I) (*a*) Canadian timber ranks second in importance to Canadian wheat (*b*) In the forests of Canada grow cedars, firs, spruces and pines. (*c*) The Douglas firs of British Columbia are some of the largest trees in the world (*d*) Sawmills are worked by electricity (*e*) Paper is made from wood pulp (*f*) Maple sap is boiled to make sugar. (*g*) Fur-bearing animals live in the forests. (*h*) The beaver is hunted for its valuable pelt

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ELDORA MINE, PORT RADIUM ON GREAT BEAR LAKE

(The mine produces pitchblende from which uranium is obtained)

V. CANADIAN WHEATLANDS AND RANCHES

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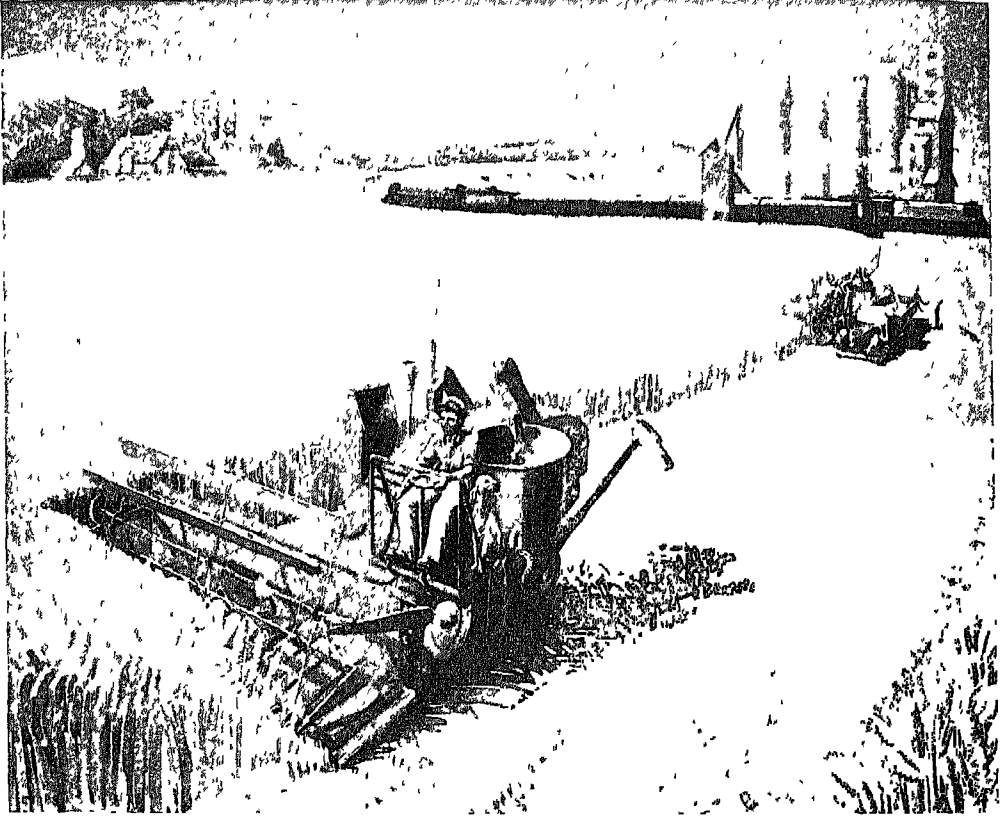

HARVESTING ON THE CANADIAN PRAIRIE

(Class Picture No. 78 in the portfolio)

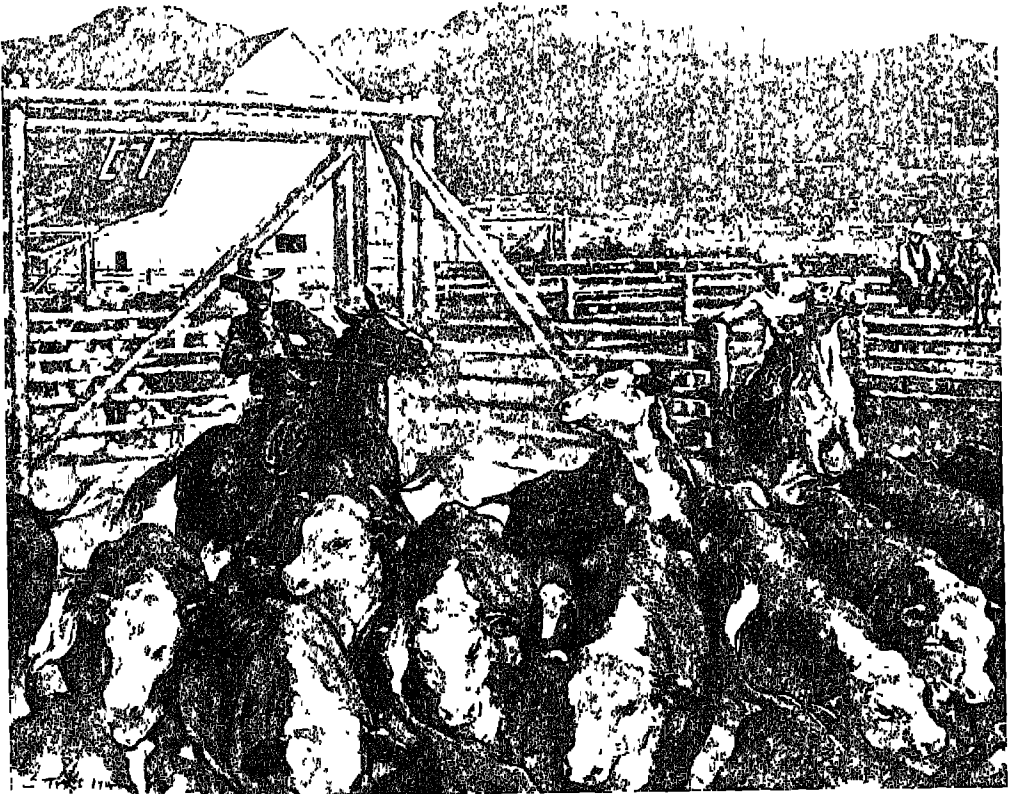
INTRODUCTION

Agriculture—The varied aspects of farming form the chief industry of the Canadian people, the products constituting a very large percentage of Canadian exports and also providing the raw materials for many Canadian manufactures. All along the southern border of the Dominion, agriculture is possible in some form or other. The Maritime Provinces are noted for their fruit and vegetable crops; Quebec and Ontario specialise in dairying; the Prairie Provinces are great regions for wheat, barley and oats, and for stock raising, and the fertile valleys of British Columbia produce fruit crops

It is, however, to the southern portion of

the three Prairie Provinces, lying between the United States boundary and the northern forests, that we must turn for the great agricultural lands and for the most important region for stock raising It must be noticed, however, that no matter how favoured the area may be in its climate and soil, big production has only become possible by the construction of a multitude of routes and by attracting to the area a hard-working, vigorous type of people Thus, since the completion of the Canadian Pacific Railway in 1866, the population of Canada has more than doubled, and the production of wheat has increased sevenfold. The big increase in the wheat crop is due, in a large degree, to the development of routes in the southern part of the Dominion

The plain region of Manitoba and Saskatchewan has a rich loamy soil It is almost treeless, is well watered and is highly fertile. The heavy snowfall of winter gives plenty of moisture to the soil in spring, the summer rainfall comes at the best time of the year, when the temperature is highest, and the high temperature of the summer months is favourable to the production of grain. The region has become the great wheat belt of Canada Saskatchewan, the middle province, has the largest production, and is followed by Alberta and Manitoba The same order is true for oats, but for barley the order is Saskatchewan, Manitoba and Alberta.

Scientific research has made Canada a great wheat land. The discovery of

A Cattle Ranch in Western Canada

(Class Picture No 80 in the portfolio)

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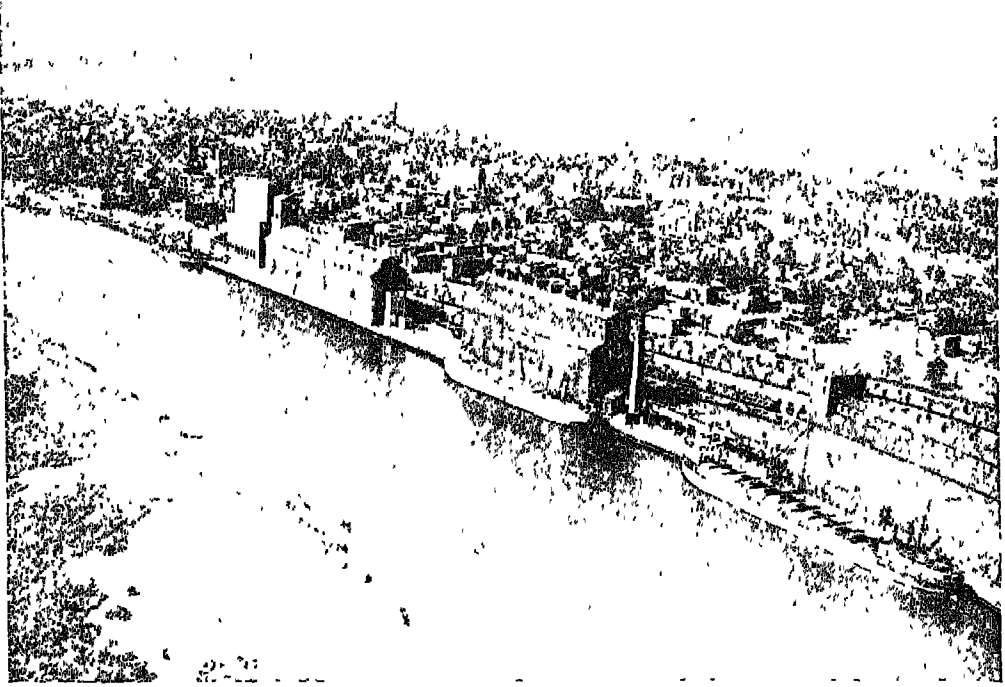
GRAIN ELEVATORS, FORT WILLIAM, ONTARIO

varieties which needed a shorter growing period than those of more equable climates was necessary, and such varieties were obtained. Every few days that can be taken off the growing period will extend the area under wheat into a more northerly and westerly part of Canada than that which is at present such a prolific source of supply.

While wheat stands supreme as a staple of human food, the other grain crops are of importance for the maintenance of live stock.

The most important manufacturing industry connected with the field crops is flour milling. Such work started with the early settlers, for it was an absolute necessity for them to obtain flour for their daily bread. Large scale production in milling began with the competition between stone and roller milling. Local stone mills had enabled farmers to convert some of their grain into flour; but to-day the small local mills have given way to the large mills served by elevators at central points suitably placed for collecting grain from a large area. Nearly 1,400 mills are now working in Canada, and about 11½ million barrels of flour are exported annually. Canada possesses the largest flour mill in the British Empire; this mill can produce 24,500 barrels of flour a day

In addition to the crops already mentioned, there are others suited to particular localities, and these add materially to Canada's agricultural wealth They comprise tobacco, sugar maple, sugar beet, fruits and potatoes. Tobacco is grown principally in Ontario and Quebec, maple sugar and maple syrup are products of Ontario, Quebec, Nova Scotia and New Brunswick Quebec, however, produces about 78 per cent. of the total. Sugar beets are grown in Ontario, where there are two sugar beet factories,

[Reproduced by courtesy of Canada House

APPLES IN NOVA SCOTIA

and in Alberta, where there is one. The production is small in comparison with the principal sugar beet countries of the world, but over 60 million lb of refined sugar are obtained annually

Canada is particularly noted for many of its fruits The Annapolis valley of Nova Scotia, the lake peninsula of Ontario, and the Okanagan valley in British Columbia are outstanding regions. The northern shore of Lake Ontario, the Georgian Bay district, the region near Montreal and Vancouver Island are also noted for their fruit crops Apples, which are probably the most important Canadian fruit, meet with ready sale in British and European markets, where their attractive appearance, excellent flavour and good keeping qualities have gained a wide reputation.

Practically all varieties of fruit are prepared in canneries located near the centres of production. In Nova Scotia the apple-growing industry has assumed great importance, a large proportion of the crop being exported to Great Britain. The first export is said to have been shipped by a sailing vessel from Halifax to Liverpool in 1849 The first steamer to carry apples direct from Annapolis to London was the *Neptune*, which left in 1881. The shipment consisted of 6,800 barrels and the journey to London took fourteen days. From that time the trade has continued to increase in volume, the annual export now being about two

[Reproduced by courtesy of the C P R

FRUIT FARMING—BRITISH COLUMBIA

million barrels The region for apples, the Annapolis and adjacent valleys, comprises a district about 100 miles long and 6 to 11 miles wide

The fruit region of Ontario, along the northern shore of the lake and in the peninsula, produces apples, peaches, pears, plums, grapes and cherries. Fruit growing on a commercial scale in British Columbia is a comparatively recent industry; to-day it is exceedingly prosperous and thousands of boxes of carefully graded fruit are exported The finest orchards are in the Okanagan valley, where apples, pears, plums, peaches, apricots and cherries are grown. It was not until the Canadian Pacific Railway was completed that fruit growing could be a commercial proposition in British Columbia. Canning fruit is a large and flourishing industry

There are more than 711,000 farms in Canada, and most of these are very large concerns, the average area of each farm in the Prairie Provinces being about 350 acres In Manitoba and Saskatchewan, over half the land suitable for farm purposes is already occupied, and in Alberta about 30 per cent. of the land is owned The best and most up-to-date machinery is in use, farm buildings are large and modern, and the conditions of life are very good

Ranching and Dairying.—Although overshadowed by the production of cereals, the raising of live stock has made very great progress in Canada. The natural pasture of the western prairies is an admirable ranching country. Sheep rearing is on a much smaller scale The meat-packing industry is developing, and some of the large cities of the plains manufacture leather from the available skins and hides In the eastern provinces cattle are reared mainly for dairy products,

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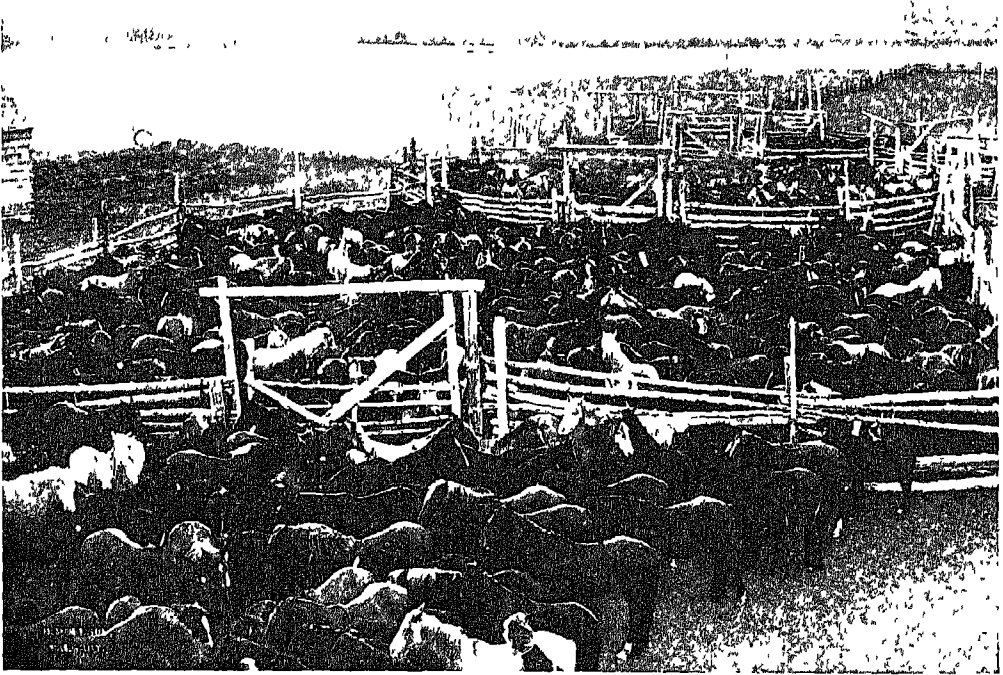

ROUGH HORSES IN CORRAL—S ALBERTA

for which Canada is now well-known Ontario and Quebec specialise particularly in the dairying industry, but it must be remembered that butter and cheese are also exported from the western plains The oldest cheese factory dates back to 1855, and was established at Oxford in Ontario

Dairying is not only one of the oldest but it is now one of the greatest industries of Canada Modern dairying owes its development and expansion to the factory system for the making of cheese and butter and to the facilities offered by modern methods of cold storage. The early French colonists made cheese and laid the foundation of the great trade in Canadian Cheddar.

Within recent years there has been a big development in the preparation of condensed and evaporated milk

The rearing of pigs, particularly for bacon production, is profitably combined with dairying and cereal farming There is a ratio of pigs to persons of 1 to 2½, which is higher than that in Ireland.

CHILDREN'S STORY

Wheat, cattle and fruit.—When the Boy Scouts were going to hold a great Empire Jamboree in England, Jim Dennis, of York, had his father's permission to make one of a party going to the camp It was a thrilling adventure, and not the least exciting part of it was meeting Scouts from overseas and hearing tales of their lives Jim became acquainted with three Canadian Scouts, all strangers to each other, and the four boys had many an earnest talk round the camp fire and during "hikes" Jim hoped to go

to Canada when he became a man, and told the others so one evening.

"The best part of Canada is the prairie," said one of the young Canadians, who lived in the province of Manitoba "My father's farm is mostly under wheat. When the winter snow melts, we turn out the tractors and ploughs, and a whole battery of them sets to work one behind another. They plough from one end of the farm to the other, because there are no hedges or fences in the way, and the furrows are nearly a mile long

"After ploughing the seed is sown and quickly shoots up. Then we get the rains, which make it grow faster still. I love the prairie in the late spring. It is all patches of colour. Wild crocuses grow everywhere, prairie roses creep and twine; golden rod and prairie sunflowers push up their yellow heads between the green blades of wheat. Father has the farm buildings all freshly painted, and the Jacksons do the same. They are our neighbours, and we can see their farm away on the skyline."

"*Our* neighbours live next door," observed Jim.

"Yes, I shouldn't care for that," replied the boy from the prairie. "I like to go out and see a stretch of sky and the plain rolling away in all directions. I should hate to live in a cramped town. We have a fine, timber farmhouse with central heating and gas, and also a large orchard and vegetable garden.

"You should see the harvesting machines we use. They cut and thresh as they go along. When the bins are full of grain it pours out of a pipe into a motor truck and is sent off to the elevator by the railway. There the wheat is put through sieves and graded, and father gets his price per bushel In the end, the grain goes down to Winnipeg by freight train."

"I saw some in an exhibition at York," said Jim. "It was called 'Manitoba Hard Wheat'"

"Yes, the hot sun hardens it. English wheat is soft Hard wheat makes the best quality flour, and I've heard that English bakers mix Canadian with other flour to give the right 'strength' to their bread. Anyway, your English loaves taste very good at tea time," and he laughed

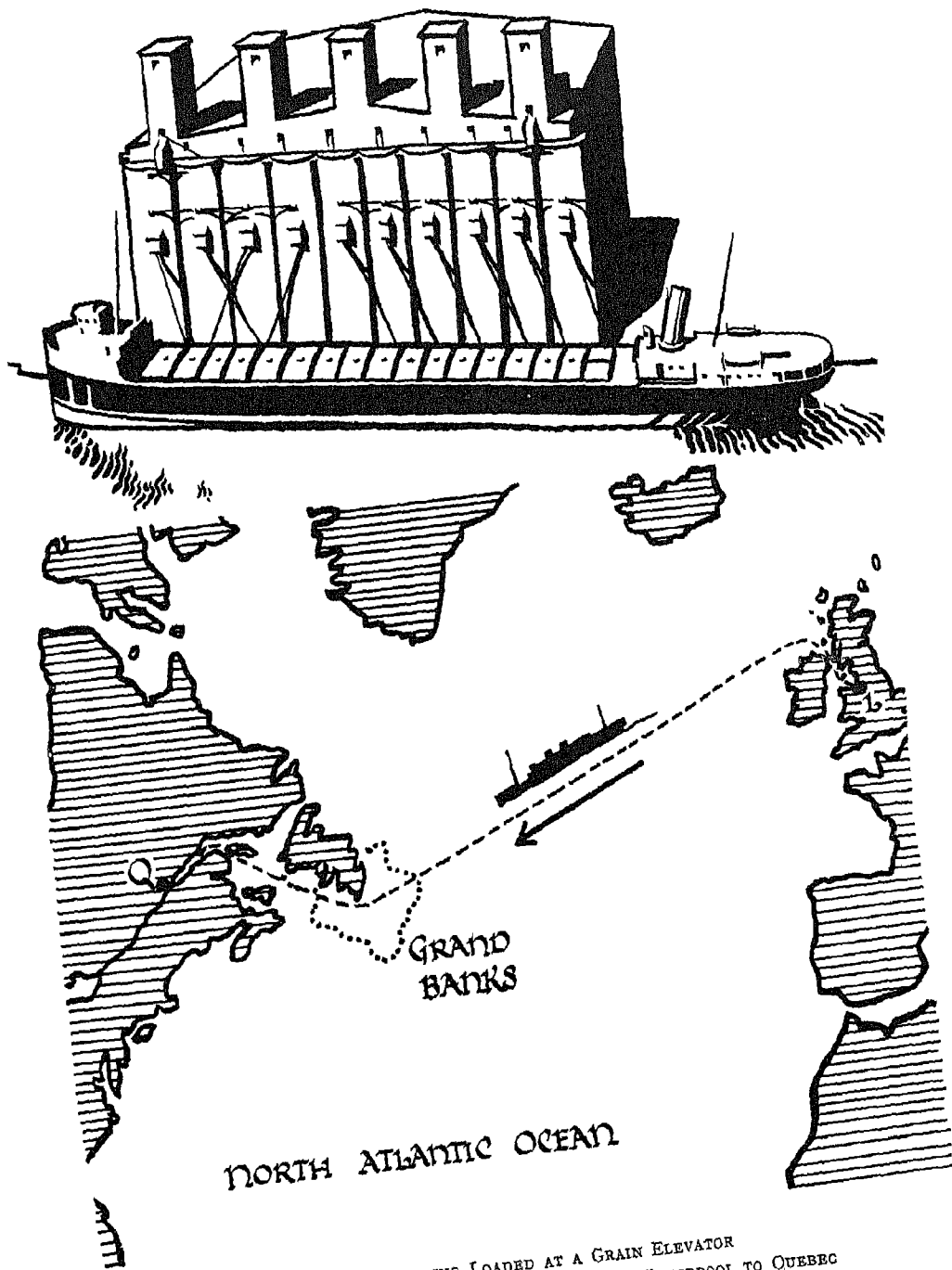
Jim made up the fire, as the wind had turned a little chill, and fetched out of his pocket a bag of toffee, which he handed round.

"*My* great wish is to own a ranch, not a farm," remarked the second young Canadian. "I live twenty miles west of Edmonton in Alberta and have ridden a horse to school for four years now. Our part of the prairie is all grassland We have plenty of sunshine and very little cold weather In winter the days are bright and the light snowfall is quickly melted by a warm wind which we call the chinook The winter is over by March, when the prairie flowers come out and speckle the grass with bright colours

"There are cattle, horses and often sheep as well on every ranch, and the cowboys have to be in the saddle the whole of the day to look after them all. There are no farm-houses or human beings anywhere about, so it is a lonelier life than a farmer's, but cowboys are always too busy to bother about loneliness They love the free life of the open air. I have seen them do great feats of horsemanship when they are rounding up horses and cattle for branding (that is stamping them with the mark of their owner). I hope to do my share of it in a few years' time"

"What is done with your cattle and horses?" asked Jim

"Canada's very big and there are plenty of lonely places not fit for cars, and you must have horses for riding or pulling. The cattle end as canned meat, chilled beef or beef extract There are big meat-packing factories at Edmonton. Some of the cattle, of course, are dairy cows, kept for butter, cheese, condensed milk and milk powder. We don't make these goods in our own dairy, but send the milk to creameries and cheese factories."

"I have eaten a lot of Canadian Cheddar cheese," said Jim

A LAKER BEING LOADED AT A GRAIN ELEVATOR

DIAGRAMMATIC MAP OF THE SEA ROUTE FROM LIVERPOOL TO QUEBEC

"Well, now it is my turn," struck in the third young Canadian, "and what I can tell is the best of all. My father is a cherry farmer in Kootenay, British Columbia, and I want to become a big fruit farmer too The wild flowers of the prairie are beautiful, but the blossoming of the trees on our cherry ranch in May is a wonderful sight The white flowers look just like wax and cover the branches from end to end. They even stick to the trunks and limbs of the trees, like the feathers on a bird's leg

"Fruit picking is a busy time The cherries look delicious and are packed in boxes holding eight or sixteen pounds each We also send hundreds of pounds to the cannery.

"My father grows cherries only, but I should like to try growing other kinds of fruit as well, as farmers do in the Okanagan valley. Father once saw a single Okanagan apple which weighed over two pounds! The Okanagan farmers grow apples, peaches, grapes, pears and strawberries, which are sold raw, or canned, or dried. Some are also made into jam Of course we never get the severe weather that the prairie suffers from, and I have heard that it is also mild and warm on the east coast of Canada in Nova Scotia, where the Annapolis apples grow."

The boy stopped speaking, and for a minute there was silence Then Jim screwed up the empty toffee bag and threw it on the fire.

"Haven't you got some special policemen who travel about on horseback, or in 'planes or cars, and make men keep the law from east to west?" he asked, slowly.

"Oh yes!" they replied in chorus. "The Royal Canadian Mounted Police."

"Well, I think I'd like to become one of them, and then I could visit you all in turn," said Jim.

TEACHING HINTS

1. Map.—The pupils should find on the map the exact positions of the wheatlands, ranches and fruitlands of Canada A sketch of Canada as a rough oblong might be drawn on the board and the various districts marked off in coloured chalks.

2. Threshing—One of the most wonderful machines in the world is the combine harvester which is seen on all the large farms of Canada. It cuts and gathers the wheat, threshes it, cleans it and pours it into bins Sometimes the grain is poured straight into wagons built up like huge bins and is taken directly to the railway car or elevator.

3. Grain elevator.—An American name for a grain silo or granary It contains a number of deep vertical bins constructed of steel plates By means of a bucket or pneumatic elevator the grain is emptied into a receiving chamber, whence it is carried by a bucket elevator to a distributing floor at the top of the building By means of a system of belt conveyors it is rapidly delivered into one of the bins Trucks which run under the bins are loaded directly, or the grain is transferred to "lakers" by belt conveyors or through spouts.

4. Ranch.—It should be pointed out that dairy cattle require a good deal of attention. The cows must be milked twice a day, and the milk must be kept fresh or sent to the factory. Beef cattle require less attention. They are turned out to feed and are brought to the farms only in winter, or during the periodical "round-up" for marking or selling. Point out that large cattle ranches are not seen in England, for there is not enough space for them and the land is too dear

5. Chinook.—This is a warm dry wind blowing along the eastern margin of the Rocky Mountains. When currents of air descend mountain slopes, they are heated by compression, and thus enabled to hold more moisture. This descending, warm, drying wind clears away more snow in a few hours than many days of bright sunshine, and allows cattle to find grass even in winter. The wind is called after the name of an

Indian tribe that once inhabited a part of the mountain area

6. Illustrations.—Children might be encouraged to collect different fruit labels; labels from canned beef, and magazine pictures bearing on the lesson, such as plants, animals, fruits, agricultural machines, cowboys, etc It is a good plan for each child to keep an exercise book in which to paste pictures and draw diagrams associated with the lessons.

7. Memory work.—(*a*) Wheat needs rain in spring to make it grow, and sunshine in summer to ripen it. (*b*) When the snow melts it leaves behind in the soil mineral food for plants (*c*) The large prairie ploughs are drawn by motor tractors (*d*) The grain is stored in elevators (*e*) Canned beef, lunch tongues, condensed milk, cheese, butter and bacon come from Canada. (*f*) Annapolis apples have red skins and white flesh. (*g*) Miles of cherry trees grow in British Columbia.

8. Exercises.—(*a*) Describe the prairie as it is to-day. (*b*) Why is the prairie so good for wheat growing? (*c*) To what city in Canada is most of the grain taken? (*d*) What is a cattle farm in Canada called? (*e*) What is the chinook? (*f*) When is the busiest time for the cowboys? (*g*) What is done with the cattle? (*h*) Where do apples grow in Canada? (*i*) What other fruit is grown? (*j*) What is done with the fruit? (*k*) What is your favourite canned fruit? (*l*) Which life would you have chosen had you been Jim? Explain why

[*Reproduced by courtesy of the C N R.*

BUFFALO ROUND-UP IN ALBERTA

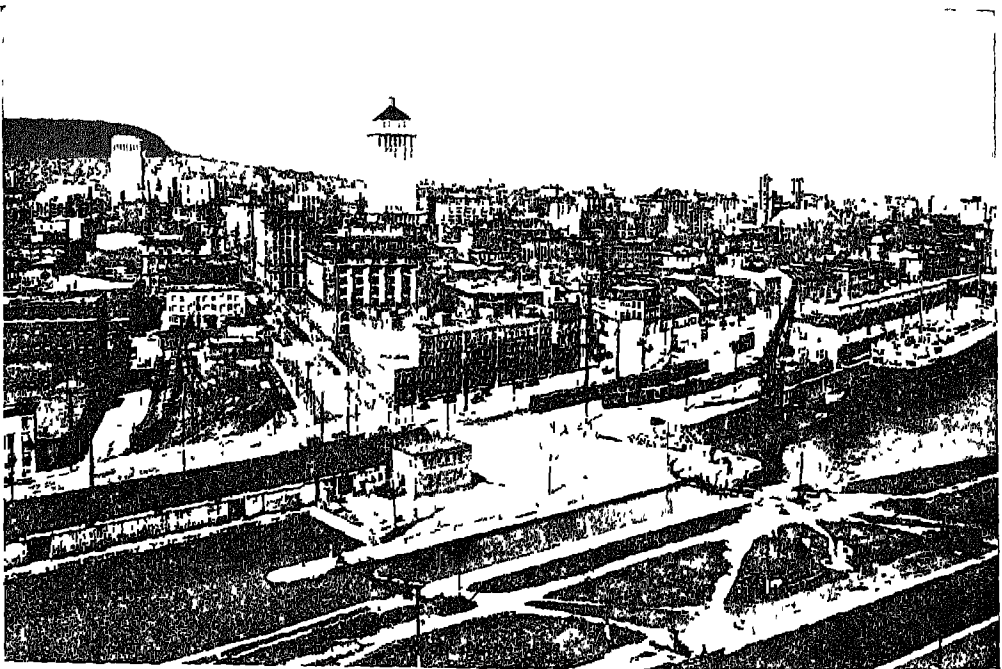
VI. HOME LIFE IN CITY AND COUNTRY

PICTURE REFERENCE

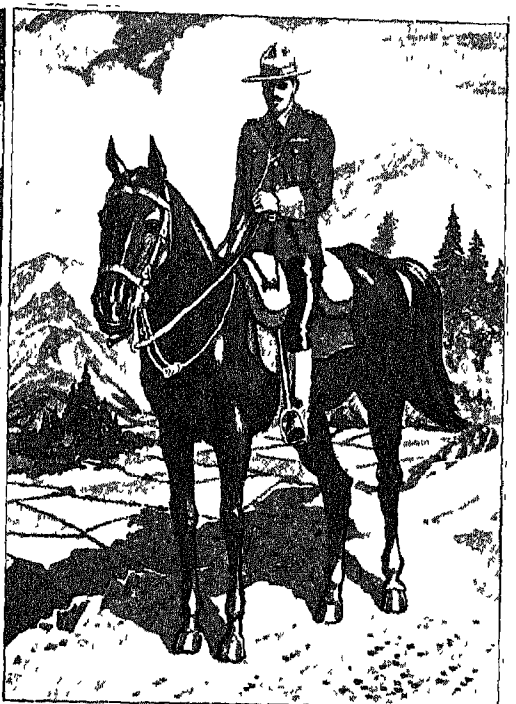
THE illustration on the following page is reproduced from the Class Picture (No. 81 in the portfolio). Here are seen pictures of Lumbermen, a Royal Canadian Mounted Policeman and a Pioneer Family The occupations of the first two have already been told, the work of the Pioneer Family in opening up new land in the Peace River district is described in the Reference Book

INTRODUCTION

More than 70 per cent of the people of Canada are found in Ontario, Quebec and the Maritime Provinces, and it is therefore on the eastern side of the Dominion that town life is best studied.

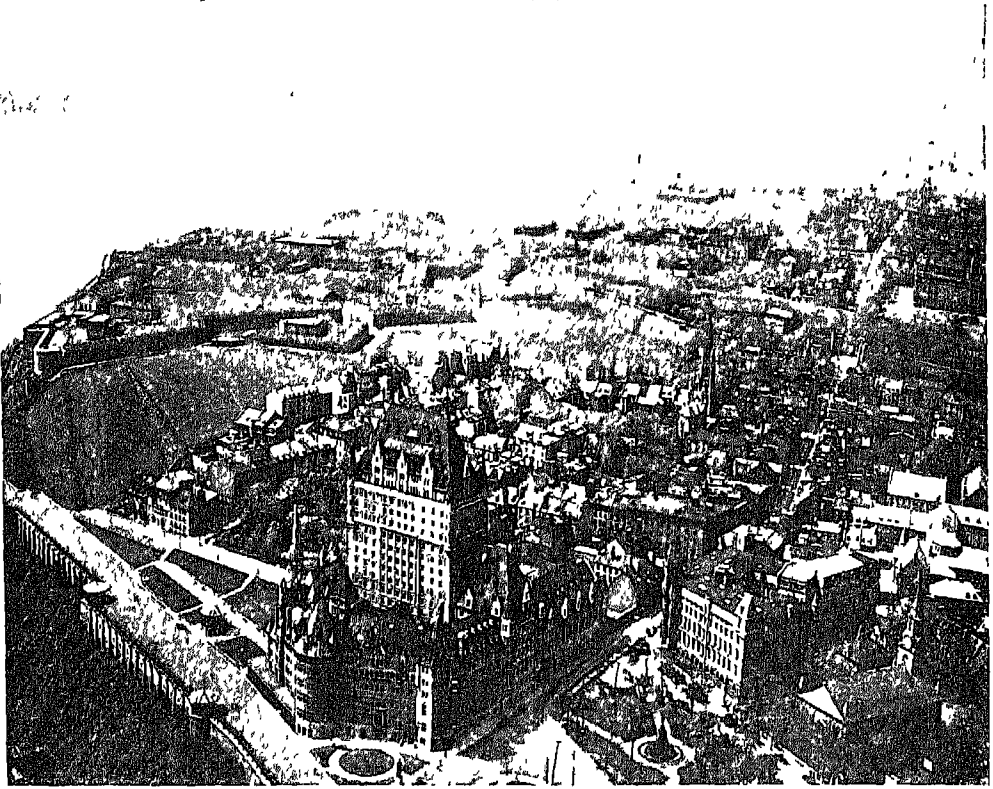
Montreal is the richest city and commercial metropolis of the Dominion. It stands at the head of ocean navigation on the St. Lawrence, and it is the headquarters of the great railways of Canada More than half the population of the city is of French origin. The first impression thrust upon the visitor is that of the commercial character of the city. Docks, wharves, ships, elevators, railway stations, business premises, banks, "sky-scrapers," and crowded streets all point

[*Reproduced by courtesy of Canada House.*

MONTREAL

Looking up McGill Street from C N R. Sheds, showing Royal Bank Building and Beaver Hall Building and Notre Dame Cathedral to the right.

CANADIAN PEOPLE

LUMBERMEN   ROYAL CANADIAN MOUNTED POLICEMAN

PIONEER FAMILY

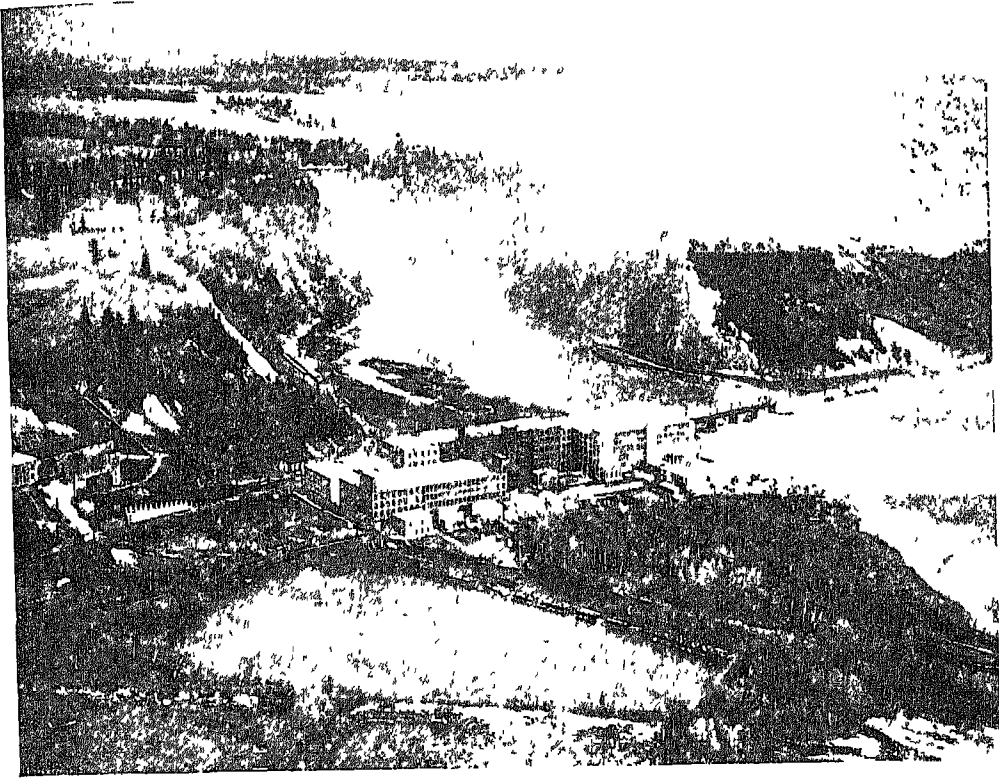
(Class Picture No 81 in the portfolio)

[Reproduced by courtesy of the C P R

QUEBEC

Canadian Pacific Château Frontenac Hotel, with the Citadel and Plains of Abraham in background

to commercial activity The city is built on terraces cut in the slopes leading to Mount Royal. Most of the largest and best buildings are constructed of local stone, which, being grey in colour, gives a special character to the city.

Many of the streets are narrow and flanked by lofty buildings The newest part, however, possesses magnificent streets and fine shops The great cold of winter and the abundance of snow make the city famous for its winter sports, which include every variety associated with the Alpine sports region of Europe. The very low temperatures of winter also necessitate a careful heating of all inhabited buildings, the central heating plan being universally adopted By such a method every part of a house is made warm, including not only all rooms, but passages and corridors. Double windows are also a characteristic feature of dwelling places in order to conserve the internal heat

Quebec still retains its French tradition, aspect and people At first sight it appears a fortress, much like Gibraltar Houses run from the base of the heights up the slope. The streets are mainly narrow and winding, and an old style of architecture characterises the city. Here both French and English are commonly heard, but the French- and British-Canadians are good friends, they follow their own religion, and manage their own schools The original battle area has been converted into the "Battlefields Park" The higher part of the city can be reached

[Reproduced by courtesy of the C P R

MONTMORENCY FALLS SHOWING POWER PLANT WHICH SUPPLIES QUEBEC WITH ELECTRIC POWER

by steep steps, by an iron stairway, or by a hydraulic elevator

Quebec is both a busy ocean port and a great railway centre, and there is plenty of evidence of the commercial side of the life in the city. Like Montreal, it is a centre of attraction for its winter sports. The abundant water power near by makes electricity cheap to produce, and electric lighting and heating are common

Ottawa is a beautiful city and possesses many magnificent buildings It is, however, a striking contrast to Quebec The streets are wider, there are more open spaces, and there is a greater wealth of attractive vegetation on the outskirts of the city. The Château Laurier and Parliament Buildings are imposing structures. Ottawa is an industrial centre Its water power, lumbering, sawmills, pulp and paper mills, have brought prosperity to the place, but, unlike many manufacturing cities, it possesses no slums. The Experimental Farm on the outskirts of the city is reached by a short journey through beautiful country There are many centres of soil research in the Dominion, and their establishment has brought prosperity to the wheat farmer. The experimental farms produced the early ripening wheat which has opened up great areas of the prairie for wheat production

At *Toronto* two features of Canadian city life become very marked (1) the love of the Canadian people for cleanliness and

tidiness, and (2) the great attention paid to education. The school-leaving age in Canada is sixteen; but in all towns of a population of 5,000 or over, a part-time education up to the age of eighteen is enforced by law The schools in the cities are large buildings, and most of the secondary schools possess their own swimming baths All schools are well built and well equipped, and co-education is characteristic of most of them. The universities, keeping in mind the character of their country, pay great attention to the scientific aspects of agriculture, pastoral work and engineering A great deal of attention is paid to cookery, needlework and household training in the schools.

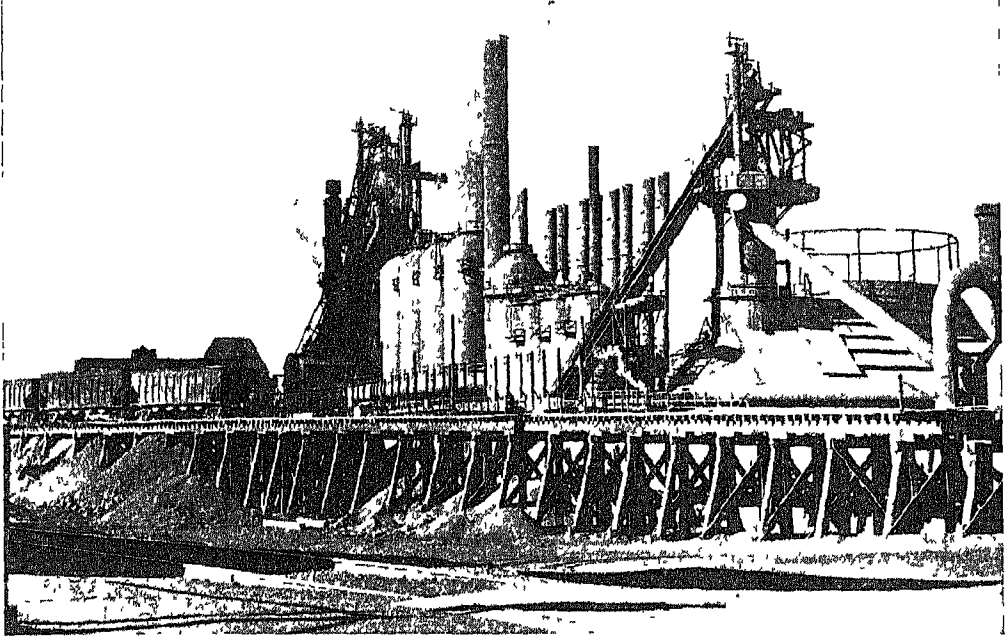
When one passes westward into the great plains a change becomes apparent. A greater variety of dwelling places and buildings is marked Wooden buildings become the predominant type of dwelling. In Canada to-day more than 70 per cent. of the dwelling places are either wholly or mainly constructed of timber. Another marked feature is the smaller attention paid to economy of space. In the prairie towns, broad wide streets are everywhere the main feature. If the prairie plain were thoroughly investigated every possible type of home could be discovered, from the simple shack, apparently cut off from civilisation, to the almost luxurious home of the prosperous farmer. Isolation, however, is not a characteristic of the great agricultural and ranching regions. The telephone is almost universal and is a link which connects the scattered population.

In the houses of the plains there are no coal fires. Every house is heated by a furnace in the basement and every part of the house is thoroughly warmed. Hot water is supplied to every bedroom. Cooking and cleaning are done by electricity Verandahs are a feature of the dwelling places away from the towns, and in the heat of summer these serve as sleeping places and dining rooms Refrigerators are used in summer for perishable food, and these supply iced water and give an opportunity for making ice cream, in which the Canadians excel

Winnipeg, the great city of the plains, was originally a fur-trading station called Fort Garry. It has had a very rapid growth. In 1870 it had a population of only 215, but to-day it has over 200,000 inhabitants. It is the railroad centre of western Canada and possesses a wonderful number of sidings for accommodation of trucks laden with grain.

In the autumn, when the harvest is travelling eastward, Winnipeg becomes a great wheat city. Stock yards are also numerous, and the largest abattoirs in the plains are in Winnipeg. Electric traction in the streets and the manufacturing establishments in the city are worked by hydro-electric power. Great Falls, on the Winnipeg river, supply the power. Winnipeg is a city of beautiful houses Being of modern construction the streets are wide and attractive. Open spaces are numerous and include a zoological garden, where the buffalo can be seen. It is a town of sunshine and warmth in summer, but it is very cold in winter. Houses are built to withstand frost, the wooden shacks have disappeared, and magnificent buildings are numerous. The schools, university and legislative buildings are an ornament to the city.

Regina is a pretty and well-planned city in the centre of a rich agricultural district. It has direct railway communication with all the important points in the west. As in the other new cities of the plains, the streets are wide and open spaces are numerous. It is noted for its fine schools, colleges and legislative buildings. Its development has been rapid, keeping pace with the conversion of the prairie into wheat fields

Saskatoon, in 1912, consisted merely of a collection of shacks, but to-day it is a well planned city containing many fine buildings, including a university. It is the railway centre for a productive farming district

[*Reproduced by courtesy of the Canadian National Film Board*

BLAST FURNACES OF THE DOMINION FOUNDRY AND STEEL COMPANY OF CANADA

In a similar way *Calgary* has developed in a few years from a Mounted Police outpost to a city of fine buildings and great commercial importance.

Although the people away from the cities lack the cinema, stage and other attractions of towns, there is usually some easy access to town amusements. Travelling libraries are in circulation in almost all the provinces, and there are travelling medical and dental clinics in the rural districts. A farm may be purchased by instalments, and by perseverance the beginner can improve his homestead until he may be in possession of a very comfortable and well-equipped home.

The Canadian homestead is so constructed that work may be made easy. The housewife does her cooking and cleaning by electricity. The houses have polished wooden floors, hot water in almost every room, and there is no dust or dirt from coal fires.

Hard work, and long hours of it, especially during the summer months, are the lot of the workers in the prairies, but it is a healthy life in pleasant surroundings.

CHILDREN'S STORY

Let us now take a peep at the homes of different Canadian children First we will visit one of the great cities We notice that the streets are very wide and the buildings tall and straight. In front of the houses are lawns which run down to the road and are not fenced in or shut off in any way The streets are lit by electric light and the machines in the factories work by electricity, which is very cheap because there are so many rivers and waterfalls from which it can be obtained All the people we meet are very proud of their city and like to point out its advantages They help it

to grow by sending out posters which attract visitors

The houses are built with verandahs round them, and in summer the families spend most of their time on these, eating and even sleeping in the open air. If we were to go inside a house we should be sure to find a telephone there, used by all the family including the children. The house is warmed by a furnace, which stands in the basement and heats water which is sent through pipes into every room. Even in mid-winter the Canadians wear light summer clothing indoors because the house is so warm, and dress in furs and leather coats when they go out. Electric lighting is used and also an electric cooker, and the girls tidy up the house with an electric cleaner In the kitchen is a freezing chest in which food is kept in summer.

We journey a few miles out of the city and stop to look round a country village Here the houses are all made of timber, but they still have telephones, electric light and wireless, so they are not without comforts We would like to buy some candies, so we go into the *store* This place is not a storehouse, it is the Canadian word for a shop The village store sells everything, from postcards to suits of clothes, and the villagers collect there to hear all the news and enjoy a chat. The storekeeper is also the postmaster and knows more about the district than anyone else. He knows the names of all the people and a good deal about them He knows what land and farms are for sale and all the latest gossip.

Our next visit is to a forest clearing in Ontario. Here the family live in a little log cabin. They have only two rooms downstairs and an attic above A big iron stove for heating the house and for cooking stands at one end of the living room On the walls hang guns, fishing rods and skins of animals. The boys are brought up to lead hard lives in the open air, lumbering, fishing, hunting and trapping Sometimes in the summer they act as guides through the forest. They do not care for city life and think little of anyone who cannot paddle a canoe and follow forest trails.

Now for a peep at a small farm on the prairie! It is a wooden cabin built of double boards with tar paper between. The farmer buys flour, bacon and canned foods from the nearest town which is fifty or more miles distant There is no other house for ten miles around and no railway station for twenty miles. The vast prairie rolls away on either hand without a fence, hedge or wall to break the view The farmer must tie up his horses at night or they may stray He cuts grass and stores it for their winter food in stacks standing near the house. All the spring and summer he toils at the land growing wheat, and in winter he may be snowbound for weeks at a time It is a hard and lonely life, but sometimes he prospers so well and so quickly that after a few years of good crops he can spend his winters in the south, while his sons and daughters go to college.

Our last visit is to the province of Quebec. Many farmers here are French-Canadians and are called *habitants* They have tiny white houses of stone, and long, narrow strips of land, carefully cultivated Every village has its church, tipped by a golden cross, for the people are Roman Catholics They are good, hard-working, lively people, just like their French forefathers who came over the Atlantic and settled in Canada years beforehand.

Canadians like to have their children well educated Most of the schools are free to all, and girls and boys sit side by side in the classrooms. There are also private schools, high schools and universities. Boys and girls leave school at the age of sixteen, but in most cities they go on taking lessons for part of the day until they are eighteen. The schools are fine buildings and many have their own swimming baths

From the Great Lakes to the Pacific, law and order in Canada are enforced by the Royal Canadian Mounted Police. They wear scarlet and blue uniforms, and ride horses or travel in motor cars, airplanes and even dog

sledges, for often they go hundreds of miles to arrest a law breaker.

In winter, as you have heard, the Canadian boys and girls enjoy all sorts of winter sports in the snow and on the ice. In summer, many boys and girls in Canada copy the Red Indians and live in camps in the forests, or spend days canoeing on the rivers, bathing and fishing They pull their fish suppers out of the lakes and cook them over camp fires At night they sit round bonfires and sing songs to the music of banjos. Such a healthy life makes them grow up into fine men and women.

TEACHING HINTS

1. Map.—All the towns and provinces mentioned in the "Children's Story" should be found by the children on the map, either during the lesson, or at the end when recapitulating. Thoroughness in this way leads to association of ideas which is valuable both in reasoning and memorising For instance, winter sports are connected with Quebec, found to be in the east of Canada; consequently eastern Canada must have a severe winter Log cabins are built in forest clearings in Ontario and New Brunswick Finding these places assists the children to locate the lumbering areas of Canada. A teacher should not be satisfied to supply the class with geographical names only, because by themselves they are too abstract to be useful

2. Homes.—The occupation of the people in any area largely determines the type of dwelling place that will be found Lumbering in the forest means more or less isolated log huts built in the regions where the trees are felled. Similarly on the great expanse of the prairie plain, isolated dwelling places and villages are numerous. The character of the dwelling places will depend upon the length of time the people have been in occupation of their land The beginner will have a simple home, but those who have become prosperous will indicate it in the style and equipment of their buildings. Everywhere in the great plains things will be comparatively new. Up-to-date equipment will be found in all the towns Even small towns will cover a large area, since there is no need for a cramped condition The points best situated for the collection of material will show great growth and will also have developed a manufacturing industry based upon the material with which they deal.

In the eastern part of the Dominion large and old towns will be found. Overseas trade is mainly centred in the ports of the east and the commerce will make these ports great towns. They, by their mixture of old and new buildings, will show both their early importance and their modern growth through large trade.

Emphasise that isolation, away from the towns, has been more or less broken down by modern inventions—the motor car, telephone, aeroplane and wireless

The water power resources of the Dominion and the great use of hydro-electric power, electric lighting and heating should be dealt with in a simple manner. Canada is rich in waterfalls, rapids and running water. Hydro-electric power is clean, cheap, and can be transmitted through wires for very long distances. In parts of the Prairie Provinces where water power is not available electrical power is obtained by engines using the cheapest fuel available Such fuel may be local coal, oil or petrol The fuel-using stations are primarily for lighting purposes

3. Shack.—This is a one-storey house built of wood. The roof is usually of sticks and twigs covered with earth, and the floor is generally pounded earth.

4. Homestead.—This really means a person's dwelling place with the ground and buildings adjoining The character will depend on the time it has been occupied and the nature of the prosperity of the owner.

5. Canadian money.—Canadian money is paid out in dollars, and a dollar is worth about four shillings There are one hundred cents in a dollar, and a cent is a copper coin, a halfpenny in value. Silver coins for five, ten, twenty-five and fifty cents are used, and bank notes for one, two, five and ten dollars or more.

6. Education.—The control of Canadian education is reserved for the provinces, the funds for its support being derived from local taxation and government grants. In all the provinces primary, and in some cases secondary, education is free. In Quebec the Roman Catholic schools which constitute the majority are chiefly controlled by the local clergy of that Church. The Protestant schools are managed by a separate board. In Ontario also, separate schools are allowed to Roman Catholics. In the Maritime Provinces, Manitoba and British Columbia the public (free) schools are undenominational. McGill University at Montreal and Toronto University are famous for higher education, and there are many newer ones. All the larger universities have the power of conferring medical degrees, and since 1877 Canadian medical degrees have been recognised by the Medical Council of Great Britain.

7. The habitant.—The earliest white settlers in the St. Lawrence valley were French, and to this day the language, customs and social institutions of Quebec are still French. Nevertheless the French-Canadians are now loyal subjects of the British Crown. The land was granted in the seventeenth century by the French king to French gentlemen, who handed on portions of it to humbler French emigrants known as *habitants*. These were generally single young men. When they had settled on their farms, they needed wives for housekeepers and cooking. The French king therefore sent out every year one or two shiploads of young women for the habitants. The "bride ships" sailed to Quebec, and there in the hall of a great convent the young men went to choose their brides, whom they married immediately and took away to their farms. The habitants are fond of dancing and singing and are devoted to their Church. They grow tobacco, vegetables and fruit on their farms, especially the Snowapple, called "Fameuse," with a bright red skin and creamy flesh.

8. Château Laurier.—This is named after Sir Wilfred Laurier, a Canadian statesman. He was born in Quebec, had a great gift of oratory, and could speak equally well both English and French. He became Prime Minister in 1896, and was the first French-Canadian to hold that position.

9. Memory work.—(*a*) Canadian cities are very like cities in England. (*b*) Most of the houses have central heating. (*c*) Electric cookers and cleaners save the housewife much hard work. (*d*) In the country the houses are made of timber. (*e*) Boys and girls go to school until they are sixteen years old. (*f*) Ottawa is the headquarters of the Royal Canadian Mounted Police. (*g*) Canada is a "Land of Promise."

10. Exercises.—(*a*) Of what use are the verandahs of the houses? (*b*) How is food kept good in the summer? (*c*) Explain how houses are warmed in Canada. (*d*) Why is electricity used everywhere? (*e*) Explain all the ways in which housekeeping is made easy in Canada. (*f*) What do you know about the village store? (*g*) Describe a log cabin in the Canadian forest (*h*) Describe a small farm on the prairie. (*i*) Describe some Canadian winter sports. (*j*) How do men earn their living in Canada?

VII. AUSTRALIA—HISTORY AND PEOPLES

PICTURE REFERENCE

THE Class Picture illustrated on the next page (No 82 in the portfolio) depicts four characteristic modes of life in Australia. The Prospector with his Camel will help the children to understand the manner in which much of the exploration of parts of western and central Australia has been carried out From the knowledge received from former lessons on the "Ship of the Desert" they will by analogy understand something of the climate and natural features of the dry interior. Accompanying the prospector is an Aborigine, whose native skill as a guide and in managing animals is often invaluable A lesson on the sugar-cane was included in the first year's course and reference to Class Picture No. 70 will provide interesting comparisons The Stockman, as his name denotes, is associated with sheep and cattle, dealt with in Chapter IX, whilst the team of the Bullocky, although largely displaced by machinery, still does notable service hauling logs in the marshy eastern forests.

INTRODUCTION

Discovery and exploration.—The development of Australia in less than a century is one of the most remarkable features of British colonisation. This great island of the southern hemisphere, with an area of nearly three million square miles, lying between 10° S and 40° S, and 113° E and 153° E, comprises one-fifth of the British Empire. The continent is almost bisected by the Tropic of Capricorn, about equal areas being in the tropical and temperate zones

There was an early tradition of the existence of an Austral Land (or Southern Land) lying to the south of India, rumours to that effect finding their way to Europe from time to time References to a Terra Australis were made by Ptolemy in the early days of the Christian era. Nothing definite was known, however, until a very much later period. It seems to have been first sighted by the Portuguese, those great explorers of the fifteenth and sixteenth centuries. In 1606 De Torres, a Spanish navigator, passed through the strait that now bears his name and proceeded to the Philippine Islands. The first Europeans to land in Australia were the Dutch In their keen desire to find fresh openings for trade, they visited the island, sailing southward from their possessions in the East India islands. The Dutch East India Company, in 1605, sent an expedition which sailed along part of the east coast south of Cape York, and in 1616 Dirk Hartog sailed along the west coast as far as the island which bears his name In 1622 the Dutch vessel *Leeuwin* rounded the south-west corner, and the name Cape Leeuwin stands as a memento of this. The following year the Dutch discovered Arnheim Land, and the large gulf to the east was named after Carpentier, the governor of the Dutch East India Company. During the next few years other efforts were made to obtain a knowledge of the continent, attention being concentrated on the northern, western and south-western coasts In 1642 Abel Janszoon Tasman sighted the western coast of the island which he named Van Diemen's Land, in honour of the governor of the Dutch East Indies The honour was later transferred to the discoverer himself, and the island is now known as Tasmania. Tasman explored the east coast of Australia for some distance, and took possession of the country in the

THE PROSPECTOR

SUGAR-CANE GROWERS

THE STOCKMAN

THE BULLOCKY

AUSTRALIAN PEOPLE

(Class Picture No 82 in the portfolio)

name of the Government of the Netherlands The Dutch, however, feared to make settlements there on account of the wildness of the country and of the fabulous giants which were believed to inhabit the land

The first Englishman to visit Australia was William Dampier, who landed on the west coast in 1688. He described the country as barren and, but for the kangaroo, almost devoid of animals. Nearly a century elapsed and then Cook's voyages began

Captain James Cook.—James Cook, the English naval captain and explorer, was born in 1728 at the village of Marton, Yorkshire. His father was an agricultural labourer, and afterwards a farm bailiff Though James Cook had not the advantages of an early education, he became by his own native talent and untiring industry the most accomplished navigator of his time

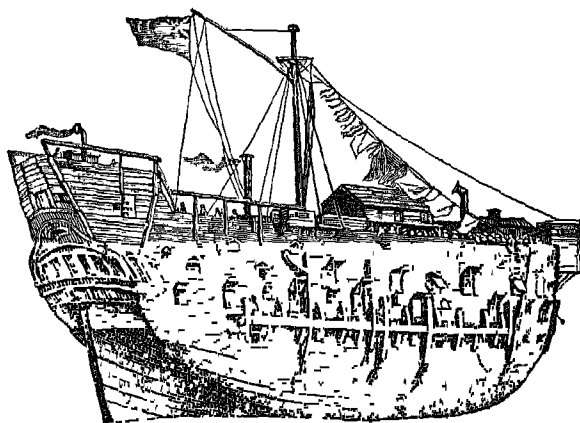
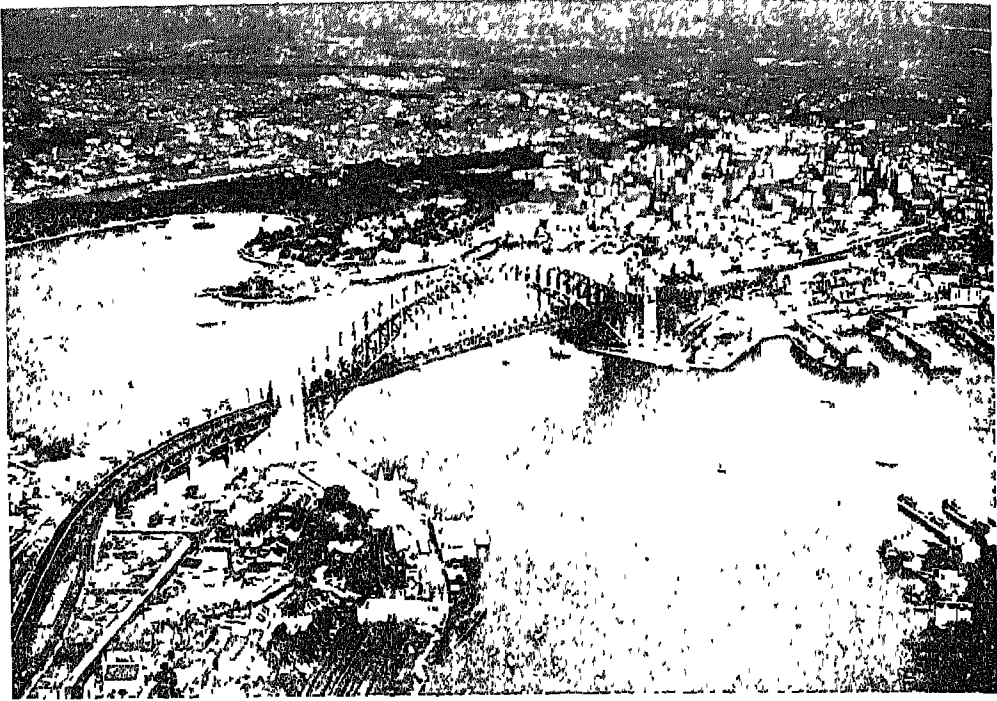
"THE DISCOVERY"

In this ship Captain Cook made his last voyage. When this drawing was made the ship was being used as a coaling vessel at Newcastle, hence the addition of the steam funnels

At twelve years of age he was apprenticed to a haberdasher at Whitby, and a year later to a firm of shipowners. He served on a merchant vessel for some years and rose to be mate In 1755 he joined the Royal Navy, and took part in the French Canadian war After peace was declared he spent some years in surveying expeditions, he sounded and surveyed the river St Lawrence, and published a chart Later he was appointed "marine surveyor of the coast of Newfoundland and Labrador" His remarkable abilities were shown in the volumes of sailing directions he brought out in 1766-68.

In 1768 the English Admiralty appointed Cook to be captain and scientific director of an expedition to Tahiti to observe the predicted transit of Venus and to carry out geographical researches in the South Pacific Ocean He set sail in the *Endeavour* in company with several men of science, and after successfully achieving the main object of his journey, Cook spent six months in circumnavigating New Zealand. He proved that this country consisted of two islands, and charted the coasts for the first time, especially noting the channel now called Cook Strait Cook then went on to trace the whole eastern coast of Australia On the way back, passing through Torres Strait, he finished the work of the Dutch explorers by proving the separation of New Guinea from Australia

In 1772 began Cook's second voyage in quest of a supposed great southern continent The voyage lasted three years, and, although no continent was discovered, he circumnavigated the globe near the Antarctic Circle. The voyage was remarkable for the successful effort of Cook to keep his men free from scurvy Out of over 100 men only four died, three by accident, in the three years. His humanity was as great as his genius, and he was prouder of the renown he had gained by giving his sailors the means of preserving their health, than of the fame of his discoveries

Cook's third and last voyage was undertaken chiefly to settle the question of the north-west passage round the American continent. He started from Plymouth in

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SYDNEY HARBOUR, NEW SOUTH WALES, AUSTRALIA

(Sydney, the capital of New South Wales and a city of 1,400,000, stretches away to the Pacific Ocean in the background Behind the famous harbour bridge is Sydney's city business area ... eft centre is a large area of parkland, behind which are the southern suburbs Right cent ... Sydney harbour, one of the finest in the world, is constantly criss crossed with ferries ... their homes in the northern suburbs and ...

July, 1776, to sail into the Pacific, and at the same time other ships were to attempt a passage on the other side from the Atlantic. Cook continued his voyage by way of the Cape of Good Hope, Tasmania, New Zealand and the Tonga and Society Islands, making discoveries as he went. From Tahiti he rediscovered the Hawaiian or Sandwich Islands, the greatest of the Polynesian archipelago He reached the west American coast, explored Bering Strait, but found further passage barred by a wall of ice. After discovering King George's and King William's Sounds, Cape Prince of Wales, and Cook's Inlet or River, he at last made his way back to the Hawaiian group Here on February 14th, 1779, the great explorer met his death owing to a conflict with the natives On the previous night natives stole one of the *Discovery's* boats, in consequence of which Cook seized the king's person until reparation should be made Having landed on the following morning with some marines, a scuffle ensued during which Cook received a blow from behind that felled him to the ground He rose at once and vigorously resisted the crowd, but was soon overpowered.

Like his second voyage, his third was futile in its main purpose, but it led to the exploration of the North Pacific The extent of the coasts Cook surveyed surpasses that of any other navigator. Distinguished honours were paid to the memory of James Cook both at home and abroad, and a

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CIRCULAR QUAY, SYDNEY, N S.W.

pension was settled on his widow, but in his lifetime small reward was given to the greatest of British maritime discoverers As a commander, an observer and a practical physician his gifts were equally great, and with it all he had extraordinary wisdom, decision and perseverance He had a commanding personal presence and won the affection of his men by his sympathy, kindness and unselfish care for them A statue of James Cook has been erected in the Mall, near the Admiralty, London.

First settlements.—In 1787 Captain Phillip left England with a party of convicts as settlers, and took formal possession of the whole of the eastern part of Australia and Tasmania Phillip was appointed governor-in-chief of "our territory called New South Wales, extending from the Northern Cape called Cape York, in the latitude of ten degrees thirty-seven minutes south, to the southern extremity of the said territory of New South Wales or South Cape, in the latitude of forty-three degrees thirty-nine minutes south, and of all the country inland westward as far as the one hundred and thirty-fifth degree of east longitude."

In 1825 Captain Bremer took possession of the northern coast. The final step to make the whole of the island a dependency of the United Kingdom took place in 1829, when Captain Fremantle hoisted the British flag on the shores of the Swan river.

In 1825 Van Diemen's Land was politically separated as a distinct colony. The territory of West Australia was created an

independent colony in 1829, and South Australia became separated seven years afterwards. In 1851, "Port Phillip District" was constituted the colony of Victoria, and Queensland was separated in 1859 On January 1st, 1901, the colonies were federated under the name of the "Commonwealth of Australia," and in 1909 the Commonwealth chose Canberra, a city now in the process of creation, as the Federal Capital of Australia. Under the administration of the Commonwealth, but not included in it, is British New Guinea or Papua.

One of the first steps towards investigation of the interior took place in 1813 when Blaxland crossed the Blue Mountains behind Sydney. The exploration of New South Wales followed. Afterwards, in 1828-9, Sturt explored the Darling and Murray rivers, and prepared the south-east for future settlement. In his later explorations Sturt set out from the Darling in an endeavour to reach the middle of the continent He traversed wastes covered with short, porcupine grass to within 150 miles of the point he had set out to reach, and was compelled to return through lack of water supplies. A member of the expedition described the barren ground west of the Darling in these words—

"There was no grass at all, not even a green thing, nothing but sand, sand, sand, arranged in interminable ridges And all this on a most stupendous scale The ridges are nearly as high as a man, about 60 feet at the base, narrowing to half that at the top. . . . At the very shores of the lake we gazed down on a vast and level expanse of brine pits."

In 1835 Mitchell investigated the Goulburn district, which he described as a beautiful and fertile region. Ten years later he explored some of the best pastoral districts of Queensland He was the first martyr in the cause of Australian discovery, being murdered by natives on the Bogan river.

Eyre did much to open up South Australia. He had frequently to go days without water and endured great hardships Burke and Wills crossed the continent from Melbourne to the Gulf of Carpentaria, and, in their attempt to return, died of starvation at Cooper's Creek. Many others took part in the great work of exploring the interior of Australia, among whom were Warburton and Forrest, who crossed Australia, and Giles, who travelled 2,500 miles from St. Vincent Gulf to Perth, nearly half the distance being through terrible scrub land.

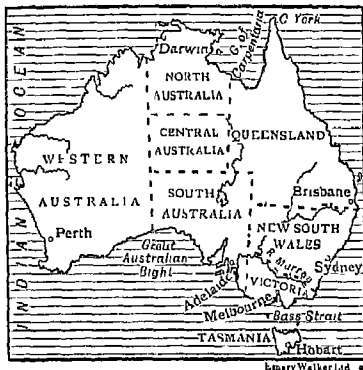
In 1851 gold was discovered in New South Wales and Victoria There was a rush of settlers to the goldfields. Numbers of Englishmen went out to make their fortunes and remained in the new land, taking up other work when gold mining failed them Many became squatters or sheep farmers. As one writer aptly phrases it, this event "precipitated Australia into nationhood"

The people.—The population of Australia is estimated to be about seven and a half million The number of Aborigines at the advent of the white race was about 150,000, and they now number less than one-third of that total

The sheep road built to the pastures beyond the Blue Mountains was the first step towards making Australia the chief area in the world for sheep and wool, and squatters laid the foundation of the sheep runs. South African merino sheep formed the basis of the early flocks brought into the country, and the export of wool commenced Pastoral industries still form the backbone of Australia's prosperity

The discovery of gold not only created a new set of industries but it opened up new areas and caused a large increase in the population.

The great mass of the population of Australia is of British stock. There is a remarkable concentration of people in six ports of the Commonwealth, since they contain nearly 48 per cent. of the whole population.

Sydney	(New South Wales)	1,398,000
	48% of State.	
Melbourne	(Victoria) ..	1,184,000
	59% of State	
Brisbane	(Queensland)	93,600
	35% of State	
Adelaide	(S Australia) .	70,000
	57% of State	
Perth	(W Australia)	216,000
	48% of State	
Hobart	(Tasmania)	71,900
	27% of State	

THE STATES OF AUSTRALIA

Thus, nearly half the population is scattered over the developed areas of the rest of the continent and there are very few towns of any magnitude other than the six named above This points to the fact that pastoral and agricultural pursuits are the mainstay of the prosperity of Australia

Australian Aborigines.—When the first explorers visited the continent the Aborigines were the only inhabitants They were people of the Stone Age, their weapons were made of stone or wood, they did not know the use of metals They cultivated no cereals, they made no pottery, they had neither flocks nor herds, and were unable to write.

Warburton, one of the early explorers, refers to the Aborigines in the following words, "They are the very lowest in the scale of humanity, and I cannot conceive anything could fall much lower They do not even take the trouble to put a few bushes to shelter themselves from the sun or the rain. . . The gentlemen take the shank bone, about nine inches long, of the wallaby, a kind of marsupial hare, and when it is lubricated nicely in the mouth, they pass it through the cartilage of the nose, and it sticks out, and having done this they are in full dress"

Charles Darwin, in his *Voyage of the Beagle*, makes this reference to the natives —"In their own arts they are admirable. A cap being fixed at thirty yards distance, they transfixed it with a spear, delivered with the throwing-stick with the rapidity of an arrow from the bow of a practised archer In tracking animals or men they show most wonderful sagacity . . they will not, however, cultivate the ground, or build houses and remain stationary, or even take the trouble of tending a flock of sheep when given to them"

The number of Aborigines is rapidly decreasing, partly owing to the introduction of European diseases, and partly owing to the gradual extinction of the wild animals They are now most numerous in reservations in the remote tropical portions of the continent, where their habits and customs are distinct survivals of old tribal ways. The men are mostly hunters, using the spear, boomerang and club as weapons, while the women supplement food supplies with lizards, snakes, small game and grass seed. Hard flat cakes made from the seed form the staple nourishment.

All illnesses suffered by these natives are supposed to be the result of witchcraft, and the task of the medicine man is to exorcise the evil spirits The native dances, called corroborees, are wonderful affairs Many of these, such as the kangaroo and emu dances, are imitations of the movements of the native animals of Australia

CHILDREN'S STORY

Captain Cook.—During the eighteenth century there lived at Marton, in Yorkshire, a boy who grew up to be one of the great

builders of the British Empire His name was James Cook. His father was a poor labourer, and when a small boy James used to scare crows away from a farmer's crops The farmer's wife kept a little school, where James learned his letters. When he was twelve years old he became an apprentice to a haberdasher at Whitby, and about a year afterwards to a ship owner. He proved to be a fine sailor and later joined the Royal Navy where he rose to a high rank.

In 1768 Captain Cook sailed to the Pacific Ocean to watch the movement of the planet Venus in the sky, and also to find out whether the southern half of the world was all water or partly land. His ship was called the *Endeavour* It had been built for carrying coal, and though not swift was stout and strong, able to stand against all weathers, and it carried twenty-two guns. On board with Cook were several clever professors as well as the crew, making eighty-five men altogether. The *Endeavour* cruised about the Pacific, first in a southerly and then a north-westerly direction. Cook discovered many groups of new islands and made charts showing exactly where they lay in the ocean At length the coast of New Zealand was sighted, and they sailed into one of the bays They called it Poverty Bay because it looked such a wretched place. Cook spent six months sailing round the islands of New Zealand. He then headed north-west over the Pacific, and three weeks later beheld the eastern shore of Australia.

The *Endeavour* journeyed up the coast and finally dropped anchor in a bay near what is now Sydney. On the shore opposite the ship was a group of Blackfellows cooking food over a fire To the surprise of the English, these Aborigines took no notice of them. The splash of the anchor in the water and the noise of the rope running out from the ship did not make them look round. When Cook ordered out the boat to the shore, however, the Blackfellows leaped up Two men, each armed with a bundle of spears, ran to a rock by the water and threatened to kill the strangers. They shot their spears from a throwing-stick with great force. The Englishmen discharged a gun at them, hoping to frighten them away One dropped his spears, but he picked them up again immediately, and faced the strangers as fiercely as before. The other man then threw a stone at the boat, and for this he was shot in the leg. Still undaunted, the two Blackfellows ran back into the bush and returned with shields made of bark to protect themselves from the gun shot. They were certainly brave men. The boat's crew soon drove them off, however, and Cook landed several times at different places round the bay. He tried to make friends with the Blackfellows, but found them always very distrustful and unfriendly The professors named the inlet Botany Bay, because of the number of new plants that they found. While there, Captain Cook hoisted the Union Jack and took possession of the country for the British Crown.

After leaving Botany Bay, the party sailed northwards. They saw and named Port Jackson and many other inlets and headlands All the while Cook took notes to assist him in making a chart of the coast line. Thus he and his companions sailed on for more than 1,300 miles. They described the country "as rather barren than fertile, yet in many places the rising grounds are covered with woods and lawns and the plains and valleys are green with grass." It was bigger than the whole of Europe, they said. The Aborigines, who were few in number, were naked savages, of a middle height, very active, their skins being of a chocolate colour, but their faces not disagreeable. Their food was chiefly fish, birds, fruit, "and the flesh of a strange animal called the kangaroo. Their weapons are spears, which they throw with great force and skill They also use shields of an oblong form, made of the bark of a tree" At one place where the voyagers landed the people set fire to the woods, which burned to the water's edge, obliging the sailors to return to their boats. Farther north, they

shot a kangaroo, which was said to be "the size of a greyhound, and mouse-coloured"

Suddenly one night at ten o'clock the water became shallow although there were no rocks or land in sight A few minutes afterwards the ship struck heavily and fell over. All guns and heavy articles had to be thrown overboard at once to lighten the vessel As soon as morning came the sailors attempted to float the ship with the tide, but could not move it because it was heavy with water leaking in. Four pumps had to be kept working in the hold, and even then the water could hardly be kept down At length one of the crew remembered a plan he had seen of passing a sail slung by cords and filled with wool and frayed rope underneath the vessel in such a way that the sucking of the leak drew the sail into the hole and thus stopped it up They did this with success and the vessel was floated off with the evening tide. Then they made for land near the mouth of a small stream and there repaired the ship The rock on which it had struck was a great coral reef stretching for hundreds of miles at some distance from the shore It is called the Great Barrier Reef

In Trinity Bay, several miles from Cape York, two Blackfellows again fiercely defied a landing party A shot was fired over their heads and they ran away. The landing party found a lonely hut with some native children in it, and threw beads and ribbons inside the hut in sign of friendship When they went again the next day, however, they found the hut empty and their presents lying untouched on the ground Cook then sailed on northwards as far as Cape York, the most northerly point of Australia, to which he gave its name The great explorer had now cruised along the whole of the east coast of Australia, and he again took possession of it for Great Britain from its most northerly to its most southerly point, calling it all New South Wales He and his companions then crossed Torres Strait and landed for a short time in New Guinea or Papua, which looked delightful from the sea. They found it a mixture of hills and valleys, where groves of coconut trees and breadfruit trees were growing Some of the Papuans shot flaming arrows at a landing party, but no one was killed After this wonderful and memorable voyage Captain Cook returned home round the Cape of Good Hope in Africa. He had a much better account to give of Australia than any of the other sailors who had visited it, for the east coast of the island is much more fertile than the other shores In taking possession of the country he had added a beautiful jewel to the British Crown, although its value was not then known

The Settlers.—Seventeen years afterwards, a party of British settlers sailed to Botany Bay They were not the best kind of settlers for a new country, because they were prisoners whose punishment was to be sent out of England Governor Phillip went with them In another six years settlers who were not prisoners had begun to sail out from England, but they did not arrive in large numbers for another fifty years, when gold was discovered in the south-west.

Settlers next appeared on the Swan River, in West Australia, but the vast stretches of land between west and east remained unknown for a long time Many brave men made journeys on camels or horses into different inland regions to find out what they were like These explorers discovered miles of hot desert, some of it covered with low prickly bushes called scrub, and all without rivers or water of any kind. The heat was terrible Gradually, through the courage and suffering of these explorers, the whole of Australia became known, and then work was set on foot to make use of these waste areas of land The soil was rich and only needed water to make it grassy So men irrigated large tracts by partly stopping up rivers in the east, carrying the overflow of water through pipes for a very long distance and letting out the water only where it was needed They also dug deep wells until they reached a layer of hard rock along

which water had collected under the earth. This water gushed up through great pipes to the surface, and it was run over the land, thus watering the thirsty soil and making it fertile. These deep wells in Australia are called artesian wells

Thus gradually Australia became a prosperous country. It is yet dangerous to go into the wilder parts without a guide who knows where water can be found. Deaths from thirst in the bush still take place Now, however, a telegraph line and a motor road cross the vast thirsty interior from north to south, while a great railroad stretches from east to west.

The Blackfellows.—Although Australia is a new country to white people, it is really very, very old, and the natives or Aborigines are among the most backward savage races in the world. They are much like the people of the Great Stone Age. They make stone axes and put stone tips to their spears They do not build houses, they have no domestic animals, they cannot grow crops or tend sheep and cannot count beyond three or four. The word that they use for "five" means "many." When they want a fire they cut a groove in a hard, flat piece of wood and lay some dry grass on it Then they sharpen a stick made of softer wood, place the pointed end of the stick in the groove, twist it quickly between their hands, and set the grass on fire (See Class Picture No 1) The Blackfellows are of middle height with thin arms and legs. They have curly hair and chocolate-coloured skins.

Their weapons are rough spears, woomerahs or throwing-sticks, clubs and boomerangs The boomerang is a curious curved stick which is thrown at an animal or enemy with great force, and if it should miss its mark it returns to the feet of the man who threw it The Blackfellows are very clever in tracking animals and men They live on lizards, snakes, the flesh of animals and grass seed, with which they make hard flat cakes

The native women collect the food, do all the work and carry everything when on the march At mealtimes they sit in a row behind the men. The meat, such as that of a kangaroo, is roughly roasted in its fur. The men devour the best parts and throw the rest over their shoulders to the waiting women. They are fond of fish and often camp by oyster beds or on the coast where there are good fishing places. In the rivers they place traps, and they also catch fish in nets made by women of the fibres of plants They believe in evil spirits and do many religious dances to ward off their bad influence All the troubles and illnesses that befall them are caused, so they think, by evil spirits

White men have tried to civilise the Australian Blackfellow, but they have not been successful He learns to wear clothes, but once they are on he will never take them off and does not understand that they need washing and changing As his life in a tribe is spent in hunting or fishing, it is difficult for him to get used to steady work But on the cattle stations of the north he and his wife are fine helpers with the animals When riding a horse he is a handsome fellow, with his fine black beard, curly hair and wide forehead. He is faithful to a white master and brave in the daytime, but easily frightened at night. The scars seen on the chests of Blackfellows are from knife cuts. When the boys grow to manhood they are gashed or tattooed in patterns which show to what tribe they belong

There are not a great number of Australian Aborigines left in the country and these are gradually dying out.

TEACHING HINTS

1. The globe.—It will be necessary at the outset of this lesson to point out on the globe the position of Australia. The children will see that it is in the centre of the water hemisphere, and they will understand why it was the last of the continents to be explored byEuropeans. Compare the position

for trade with that of the British Isles in the centre of the land hemisphere.

2. History of Australia.—There are several special points that need emphasis. (*a*) Australia was the last region of the world to receive the serious attention of the great explorers (*b*) The development and exploration have taken place within the last few years of the world's history (*c*) The continent was known to the Dutch many centuries ago, but they were not seriously impressed with the region they had discovered (*d*) The great distance of Australia from Europe (halfway round the world) was a handicap to the early traveller on the ocean (*e*) It was not until Australia was explored from its eastern shore in a temperate part of the continent that progress was made. (*f*) The great heat of the interior, the lack of water and supplies over tremendous areas, and the deficiency of navigable rivers penetrating far into the interior were all against the early explorers (Contrast with Canada—the wonderful water routes, the abundance of natural products and the temperate climate) (*g*) The discovery of gold in 1851 was the special incentive to settlers to overcome the disadvantage of distance and natural barriers, and in one year the population was doubled and brought to over a million

SIR ROSS SMITH'S FLIGHT TO AUSTRALIA

3. Communications.—In earlier days it was considered a rapid journey to get from England to Australia in 100 days Mail steamers now take less than 27 days for the voyage between Fremantle and Toulon. Children will readily understand how modern inventions have brought the people of Australasia and England closer together The All-Red cable connects Vancouver to Auckland which is in communication with Sydney. From Australia cables go to England from Fremantle *via* Durban, and from Darwin *via* Singapore, Madras and Bombay.

News can now be transmitted by wireless.

In 1919 Captain Ross Smith, with his brother, Sir Keith M. Smith, and two sergeants, accomplished the first flight to Australia. They left Hounslow on November 12th and reached Darwin on December 10th, having covered 11,294 miles in less than a month The route followed is shown on the map To-day the huge air liners of the British Overseas Airways Corporation regularly span the vast distance in 48 hours.

4. Van Diemen's Land (Tasmania).—In 1798 Dr Bass sailed between Victoria and the island, proving that it was not a part of the mainland At the time of its discovery the island contained about 5,000 natives, but they are now extinct It was first used as a penal settlement for convicts from Britain, and the change of name from Van Diemen's Land to Tasmania was to wipe out the disgrace attached to the island A peculiar animal, somewhat like both a dog and a bear, and called the Tasmanian Devil,

is found in the north of the island It has a very large head in proportion to its body, is nocturnal in its habits and exceedingly ferocious

5. Blue Mountains.—These are a well wooded range of mountains in New South Wales, extending from the Australian Alps to the Liverpool Range, and approaching to within 40 miles of the coast Their average height is about 3,000 ft., and they send spurs to the sea coast. They received their name from the distinctive colour they present, at a distance, to the observer.

6. Botany Bay.—This is now a popular picnic resort On the south side of the bay is a monument commemorating the landing of Cook in 1770. The name was given owing to the remarkable variety of plant life seen there by the first explorers,—scientists who accompanied Cook in the *Endeavour* The pass in these mountains behind Sydney has led to the convergence of routes upon the great seaport.

7. New South Wales.—This name was given by Cook to the eastern part of Australia on account of a supposed resemblance to Glamorganshire.

8. Artesian water.—About one-third of the rain which falls sinks into the earth wherever the surface is porous Some returns to the surface from springs on sloping ground, some can be obtained by digging wells In certain parts of the earth the water is trapped and cannot return to the surface of its own accord This is the case when the porous rock is saucer-shaped and lies between two layers through which water cannot pass. Rain enters at the edges of the porous material and accumulates on the non-porous layers below If a boring is made the water gushes up as an artesian well.

9. Great Barrier Reef.—This coral reef, 1,200 miles long, stands at an average distance of 20 or 30 miles from the coast of Queensland, and consists of a number of reefs built by living organisms called coral polyps, which thrive in warm sea water near the surface. The lower part of the coral polyps hardens into a solid cement formed from the carbonate of lime extracted by the living creatures from sea water. Coral rock is not really *built*, but is a vast accumulation of the skeletons of the coral polyps. The passage between the Great Barrier Reef and the coast is used by ships passing from Sydney and Brisbane through Torres Strait on the route to Singapore, China and Japan. The Aborigines gather sea slugs (black animals shaped like cucumbers) that crawl over the coral; they are cured and exported to China as *bêche-de-mer* or *trepang*. Pearl oysters are also gathered; the headquarters of the pearl fishery is at Thursday Island

10. Memory work.—(*a*) Australia was the last continent to be discovered. (*b*) Early visitors thought it a dry, barren land useless for trade. (*c*) Captain Cook was the greatest English explorer (*d*) He discovered Australia and New Zealand. (*e*) Cook hoisted the Union Jack at Botany Bay (*f*) Many settlers became sheep farmers or squatters.

11. Exercises.—(*a*) To what nation did the first men who visited Australia belong? (*b*) What did they say about the country? (*c*) Who was the first Englishman to visit Australia? (*d*) What was the name of Captain Cook's vessel? Describe this famous ship. (*e*) Tell all you know about Captain Cook himself. (*f*) What did Cook say about the country of Australia? (*g*) How was the ship nearly wrecked? (*h*) What name did Cook give to the east of Australia? (*i*) Who were the first British settlers? (*j*) What discovery drew a large number of people to Australia? (*k*) What happened to these people? (*l*) Tell of some of the hardships undergone by inland explorers (*m*) In what ways is water obtained in dry districts? (*n*) How are the Blackfellows like men of the Stone Age?

VIII. AUSTRALIA—A TRIP ACROSS THE CONTINENT

PICTURE REFERENCE

DAIRY COWS IN VICTORIA, AUSTRALIA

(Class Picture No 83 in the portfolio)

INTRODUCTION

The British Territories in Australasia comprise the Commonwealth of Australia, the Australian Dependencies of Papua and Norfolk Island, the Dominion of New Zealand and adjacent islands, and the Crown Colony of Fiji

The Commonwealth of Australia consists of the states of Queensland, New South Wales, Victoria, South Australia, Western Australia and Tasmania North Australia, Central Australia and the Federal Capital Territory are directly administered by the Commonwealth. The Federal Capital is Canberra, about 150 miles south-west of Sydney.

A mountainous ridge, the Great Dividing Range, runs near the east coast, gradually increasing in height from north to south The highest part is the Australian Alps, which attain their summit in Mt. Kosciusko. The Australian Alps are continued northwards by the Blue Mountains, Liverpool Range, New England Range, etc. The island of Tasmania, separated from the mainland by Bass Strait, is a detached part of the mountain ridge.

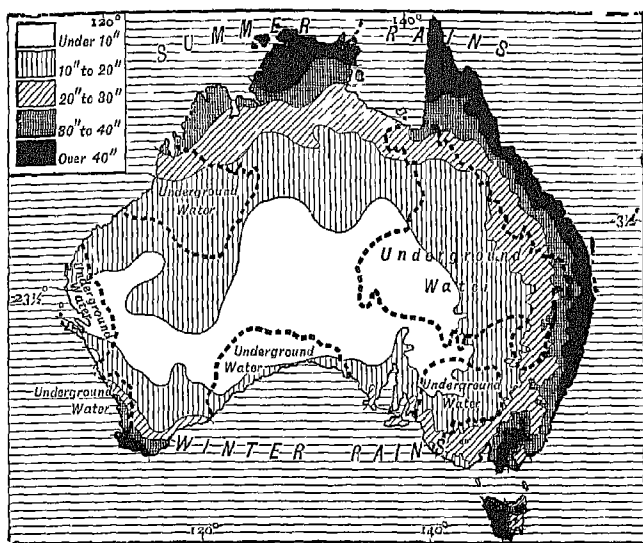
Southwards from the Gulf of Carpentaria stretches the deep depression of the middle plain. The low shores of the Gulf are separated by a narrow ridge from a basin of inland drainage centring in Lake Eyre. There are several more lakes in this area, but they are dry hollows filled with water only after rain Many of the rivers shown on the maps in the middle plains are usually dry watercourses except after rain. To the south-east is the lowland of the important Murray-Darling basin.

West of the plains is a vast low plateau, which comprises half the continent.

The coast of Australia is regular. In the south is a wide bay called the Great Australian Bight. For some three hundred miles its shores are rock-bound by almost vertical cliffs, and there is no anchorage for ships. In the north is the Gulf of Carpentaria. The Great Barrier Coral Reef extends for about 1,200 miles along the coast of Queensland, and forms a huge natural breakwater. Australia has, however, many excellent harbours, the chief of which are Port Jackson, on which stands Sydney; Port Phillip with Melbourne, St. Vincent Gulf with Port Adelaide, and Spencer's Gulf

The capital cities of the states are Brisbane, Sydney, Melbourne, Adelaide, Perth, Darwin and Hobart (Tasmania). All these cities are seaports with the exception of Perth on the Swan river, which has Fremantle as its port, and Adelaide which has Port Adelaide. All these cities on the mainland except Darwin are joined by rail, which generally follows the contour of the coast, and branches extend to the busy mining and agricultural towns inland There is no railway at present from north to south, but Darwin is joined to Adelaide by a telegraph line and motor road

The great transcontinental line, 1,037 miles long, extends from Kalgoorlie to Port Augusta, north-west of Adelaide. The most important railway journey in Australia is from Perth to Brisbane, a distance of about 3,500 miles The greatest drawback to the railway communications in Australia is that lines of different gauge have been laid in the different states, so that on a journey from Perth to Brisbane it is necessary to change trains eight times, and the journey of 3,500 miles takes 170 hours To-day, however, vast rebuilding works have begun by which all gauges will be unified and new lines laid to connect Darwin directly with N S. Wales and Queensland. Good roads radiate from the chief cities. In the drier regions the pack camel is extensively used, for camels can walk on the dry roads without turning up the dust; donkey and mule teams are used to draw wagons, as these animals can live on rough herbage

Rainfall.—The Tropic of Capricorn passes almost through the middle of the continent, so that the northern half belongs to the tropical zone, and the southern half to the warm temperate zone. As the mountains are near the east and south-east coasts, a large part of the continent is shut off from rain-bearing winds The northern coast is a monsoon region with summer rains and a high temperature The eastern highlands have rain at all seasons; the western slopes of the highlands are drier, and the rainfall steadily decreases as the distance increases from the coast. The south-west and south-east of the continent lie in the track of the *Brave Westerlies*, here the rain falls mostly during the winter months of June, July and August, and the climate is of the Mediterranean type. Tasmania, also in the track of the *Westerlies*, has a plentiful rainfall at both seasons of the year A vast interior region of Australia has little rainfall

ANNUAL RAINFALL IN AUSTRALIA

It is well to remember when studying the rainfall map, that a total annual rainfall of less than 12 inches is *arid*, 20 to 40 inches is *damp*, 40 to 60 inches is *wet*.

Southwards from the Gulf of Carpentaria stretches a vast artesian area of underground water. Layers of rock tilted in the shape of a great basin lie on layers of clay through which water cannot pass This water is reached by deep borings, and over 4,500 artesian wells have been sunk for watering cattle, sheep and vegetation.

The Murray-Darling is the chief Australian river Both the Murray and its tributary the Murrumbidgee rise among the heights of Mt. Kosciusko, and are partly fed by the melting snows Dams and reservoirs have been constructed in connection with the river system, and by this means large areas of dry fertile land have been made to yield great crops of wheat, fruit, etc The river flows into a large shallow lagoon called Lake Alexandrina, and owing to the presence of banks of shifting sand the mouth is not of much value to commerce

Vegetation.—The forest regions are mainly in the highlands and the better watered coastal lands. Along the north and north-east margins are forests of the tropical kind. The eucalyptus, or gum tree, is characteristic of the whole continent. There are many kinds, varying from the mallee scrub, which covers a large area, to the great jarrah trees of the south-west Gippsland, a well-watered region in Victoria, is famous for giant gum trees, the tallest hardwood trees in the world.

Inland from the forest regions, where rainfall decreases, are woodlands, grass and cultivated lands The dry interior lands are either scrublands or bare, The scrub vegetation of dwarf acacias and spinifex prevails where rain falls at intervals, and as exploration extends into the heart of Australia it is found that the land unfitted for agriculture is not so extensive as was at first thought. The grassy plains of the Murray-Darling basin are the most noted of the fertile plains.

Millions of sheep, beef cattle, and dairy cows are reared on the grasslands, millions of bushels of wheat are grown on the cultivated lands

Animal life.—The continent has for many ages been separated from other lands, so that the native animals are different from all others They are mostly marsupials—that is, the females have a pouchlike bag in which the young are carried during infancy. The kangaroo, Australian opossum, wallaby and wombat are among the best known A very strange animal is the platypus, or duck-billed mole, but this is not a marsupial In the forest regions are flying squirrels, tree snakes, gaily plumed parrots, parrakeets, beautiful lyre birds and many other birds On the grasslands, besides the kangaroo, are the emu and cassowary, large

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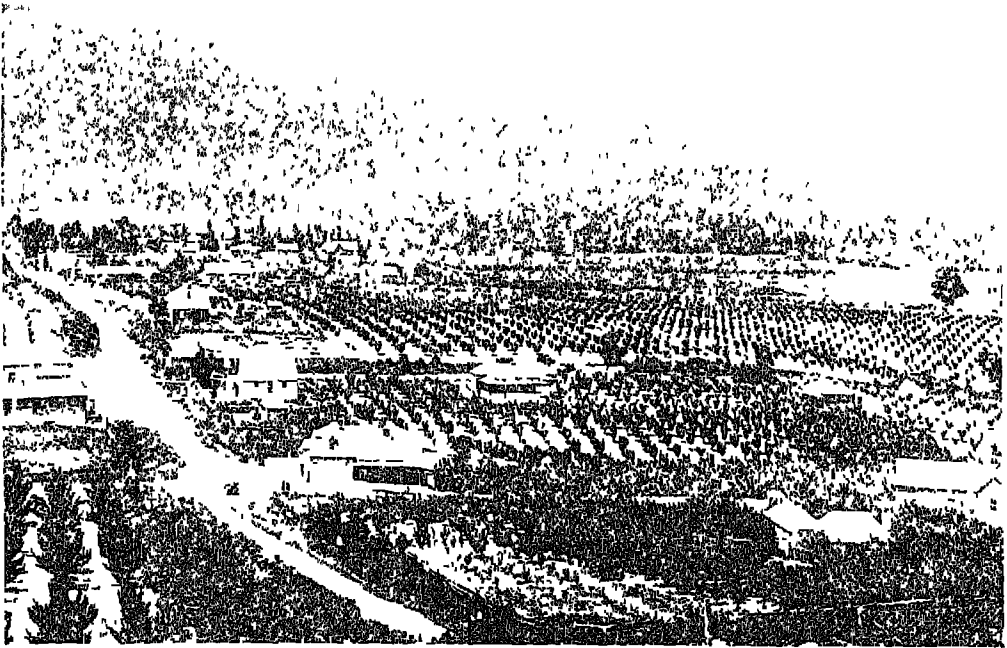
ORCHARDING IN VICTORIA

running birds akin to the ostrich of South Africa and the rhea of South America

When the continent was discovered in the seventeenth century there were no horses, cattle, sheep, pigs, etc, but these animals all thrive remarkably well in Australia. Rabbits, which were introduced from Europe, multiplied so fast that they have become a pest, and sheep runs have to be enclosed by miles of wire fences to preserve the herbage In Western Australia a rabbit-proof fence has been constructed across the continent from north to south There is now a considerable trade in rabbit skins and rabbit meat.

Sheep farming.—The introduction of refrigerative methods has made it possible for Western Europe to import mutton from Australia and New Zealand, where cheap land and suitable climates have made sheep farming one of the chief industries Immense numbers of sheep are reared in all the states. The largest numbers are reared on the hills among the head waters of the Murray-Darling system, in the south of Victoria and the adjacent territory of South Australia Wool is the greatest of all the Australian products The country owes its pre-eminence as a wool-producing country to the rich grasslands and to the fleshy grey-green shrub called the salt bush which covers large tracts of country. It smells of bad fish when crushed in the hand, and has a salty flavour, but it is excellent food for sheep

Cattle rearing.—Australian cattle are mainly beef-producing, but there is an increasing industry in dairy farming Queensland and New South Wales rear beef cattle in great numbers, but in the cooler and moister coastal regions of New South Wales

[Reproduced by courtesy of the Commonwealth of Australia

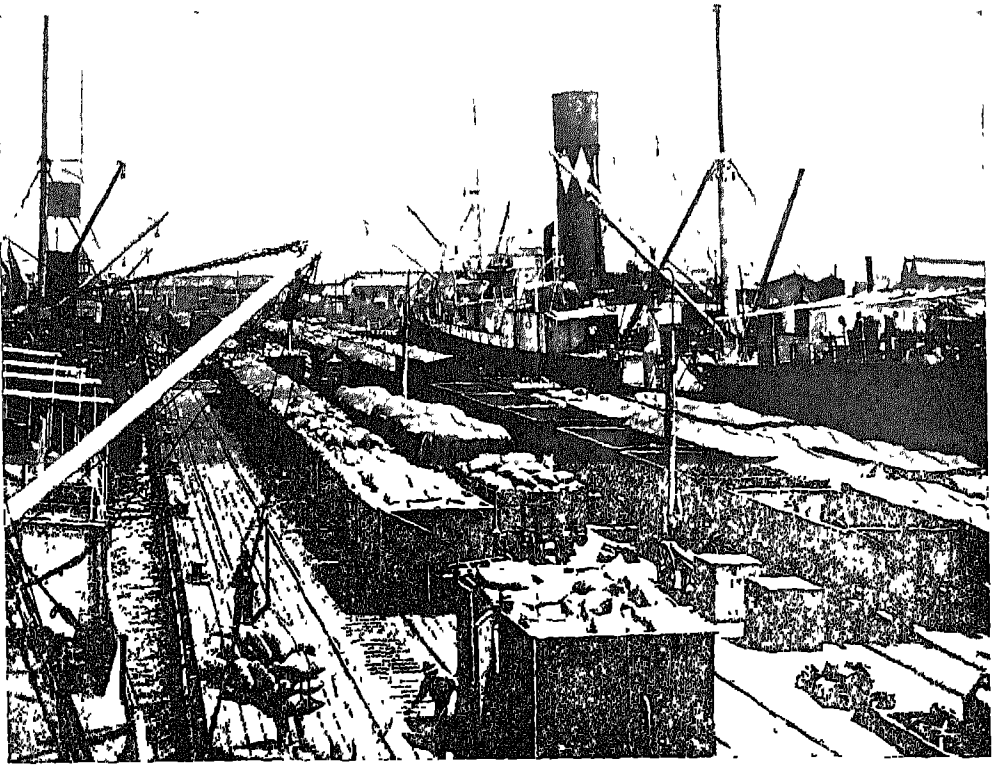
APPLE ORCHARDS, TASMANIA

and Victoria, and in the Murray-Darling basin, dairy cattle are reared in order to supply the cities with milk, butter and cheese In Queensland and New South Wales maize is largely grown as food for cattle and pigs.

Other crops.—On the hot, moist coastal regions of Queensland the sugar-cane is cultivated by white men, and bananas and pineapples are grown; farther south, oranges, lemons and other fruits are produced

There are extensive vineyards in South Australia and in the irrigated Mildura district of Victoria where the climate is of the Mediterranean type The products of the vineyards are wine, table grapes, dried raisins and currants. Other crops are apricots, peaches, nectarines and plums In parts of Victoria and in Tasmania the cool damp summers are specially suited to apple growing Fruit is exported fresh, canned, dried, in jams and in jellies.

Wheat is the only Australian cereal crop of which a surplus is grown for export Where the climate is suitable, natural grasslands, scrublands and lightly wooded areas of eucalyptus and pine, have been cleared for wheat production It is mainly produced in the region of winter rains in Western Australia, South Australia, Victoria and New South Wales Little wheat is grown in Queensland, which has summer rains, or in Tasmania, which is too wet In New South Wales the *Riverina* is the chief wheat-growing area, in Victoria the *Wimmera* district, once covered with mallee scrub, is the best wheat area, in South Australia the wheat area extends inland from Adelaide for 150 miles; in Western Australia wheat is grown in the south-west

Towns.—Australia is about equal in area to Canada Only a small part of the continent is inhabited The total population is about seven and a half millions The policy of the Australian Government at the

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LOADING WHEAT, MELBOURNE

present time is to keep a white Australia, that is, not to allow coloured races to work on the plantations. This partly accounts for the scanty population of the hot monsoon region of the north and north-east, as white people do not take kindly to plantation work in these regions. There are vast areas in Australia waiting for development as the population increases. Australians are mainly agriculturists widely scattered over extensive tracts of fertile land, or town dwellers living close together in cities. About 48 per cent. of the people, who are mainly British, live in the capital cities of the states, and these cities are on or near the coasts. The chief factories are those connected with the main industries. bacon-curing works, meat freezing, butter factories, flour mills, smelting works, sawmills, tanneries, cloth factories, canneries, etc

Many large towns in Australia are mining centres Australia is rich in minerals, the chief of which are gold, silver-lead, zinc, copper, tin and coal Many of the mines are situated in the arid parts of the country far distant from the chief cities, to which, however, they are joined by rail. Coal and iron are abundant, but up to the year 1940 secondary industries were slow in development. Serious shortages during the Second World War, however, caused a remarkable transformation and to-day in shipbuilding and the manufacture of cloth, chemicals, paper, heavy steel goods, aeroplanes, motor cars and innumerable modern products an era of vast industrial expansion has begun.

Queensland.—As the rainfall is heavy and the heat great, there are dense tropical forests near the coasts, and tropical plants

can be grown The heat is too great for extensive sheep rearing, but cattle rearing on the plains is of much importance. Wool and frozen beef are the chief exports Brisbane is the capital, chief port and industrial centre; Rockhampton and Townsville are ports and railway centres with large meat-preserving works; the chief goldfield is at Mount Morgan, which is also the second most important copperfield, the most important coal mines are at Ipswich.

New South Wales.—In the Hunter river coalfield is Newcastle, the centre of the industry and of Australia's largest steelworks The silver-lead-zinc mines of Broken Hill are some of the most celebrated in the world Broken Hill is on the edge of the desert, cut off from the rest of New South Wales, but joined by rail to Sydney and to Port Pirie on Spencer's Gulf in South Australia Sydney, the capital, has a magnificent harbour and beautiful beaches It is a gay and lively city, with many industries and well over a million inhabitants. The county of Cumberland which surrounds the city has a large number of thriving towns, joined to the capital by motor roads, railway and aeroplane services, and some by coastal steamers

Victoria.—Gold mining is mostly done at Beechworth and Bendigo Melbourne, the capital, is a dignified city set by the beautiful tree-lined Yarra River It is also a great seaport, and the centre of many industries brought about by plentiful electricity generated from the coal deposits of Gippsland. Geelong, the second port, is notable for its wool trade

South Australia.—Most of the people live in the wetter south-east, about Spencer's and St Vincent Gulfs Copper is mined at Wallaroo and Moonta in the Yorke Peninsula South Australia is the one state in which gold mining is of no importance Wheat and wool are the chief exports Adelaide, the capital, is a centre of culture, a quiet well-planned city with vistas to the country beyond at the end of every street; its port is Port Adelaide.

Western Australia comprises more than a third of the continent, but it is sparsely inhabited The bulk of the people live in the south-west, where rainfall is certain Here are grown Mediterranean fruits and wheat The Fitzroy valley in the tropical north is the chief cattle rearing area, sheep are mainly reared in the middle districts The rich gold mines of East Coolgardie and others are in the desert lands, water is conveyed in pipes from a great reservoir a few miles south-east of Perth. Perth, the capital, has a fine situation on the Swan river, some twelve miles from Fremantle, its seaport, where there are smelting works, flour mills, tanneries and foundries.

Tasmania has abundant rain, hence much is forest country with grasslands in the drier areas, where cattle and sheep are reared Hobart is the centre for the fruit growing (especially apples) of the south, and has many factories The chief cereal crop in Tasmania is oats Copper, tin and zinc are important mineral products.

The Northern Territory (now divided into North and Central Australia) is at present undeveloped, having only a few settlers mainly engaged in cattle rearing. Many of these cattle are taken by well-known stock routes to neighbouring states Darwin is the port A transcontinental railway will eventually join Darwin with Adelaide

CHILDREN'S STORY

Australia is such a vast country that people sailing to it from different lands will not all start from the same place to travel across it Those who go out from England on a P & O liner will arrive at Fremantle, the port for Perth in Western Australia. This great state extends over one-quarter of the whole of Australia, but as yet it has fewer people in it than any of the other

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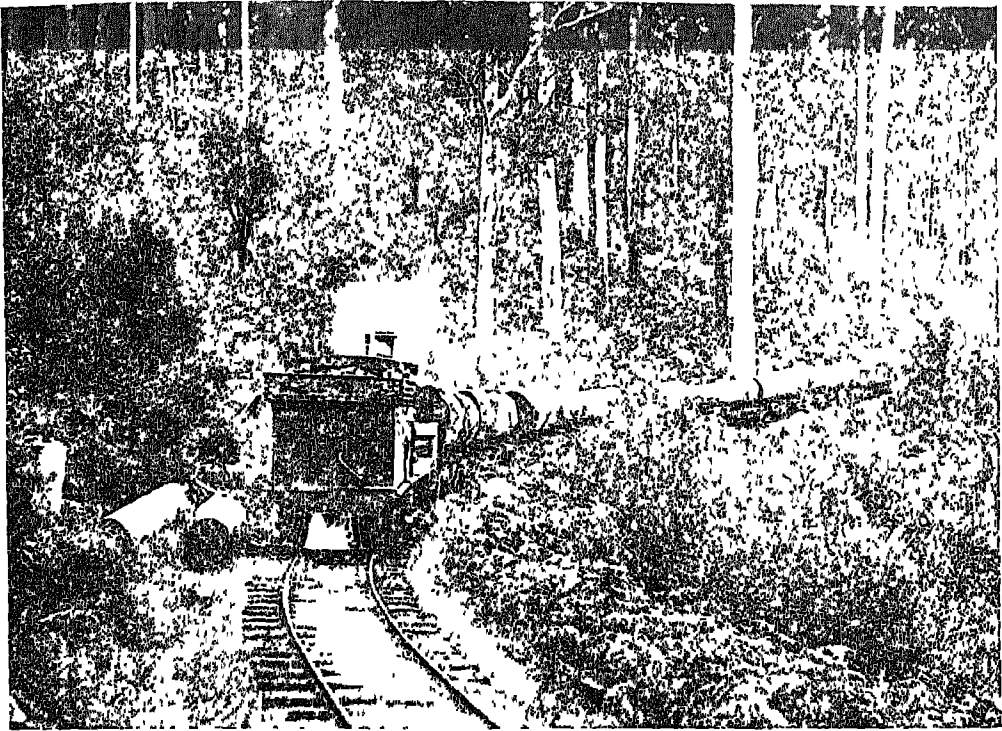
TIMBER HAULING—KILCOY DISTRICT, SOUTH QUEENSLAND

states except Tasmania. In the year 1917 an important railway called the Trans-Australian Railway was completed This runs across part of southern Australia linking up with railways in the east and west, and is a great help to the trade of Western Australia Travellers can now take a comfortable train, which has dining and sleeping cars and a bathroom, for a journey of over three thousand miles from Fremantle on the west coast to Brisbane on the east coast.

People may travel to Australia in a British ship by way of the East India Islands They will sail by the coast of Queensland past maize, sugar and banana plantations, vineyards and orange groves. They will arrive at Brisbane and take their trip across the continent from Brisbane to Fremantle instead of from Fremantle to Brisbane They will have caught a glimpse of the hot forests of Australia, the home of the crocodile From the forest edges spread away grassy plains on which thousands of cattle feed

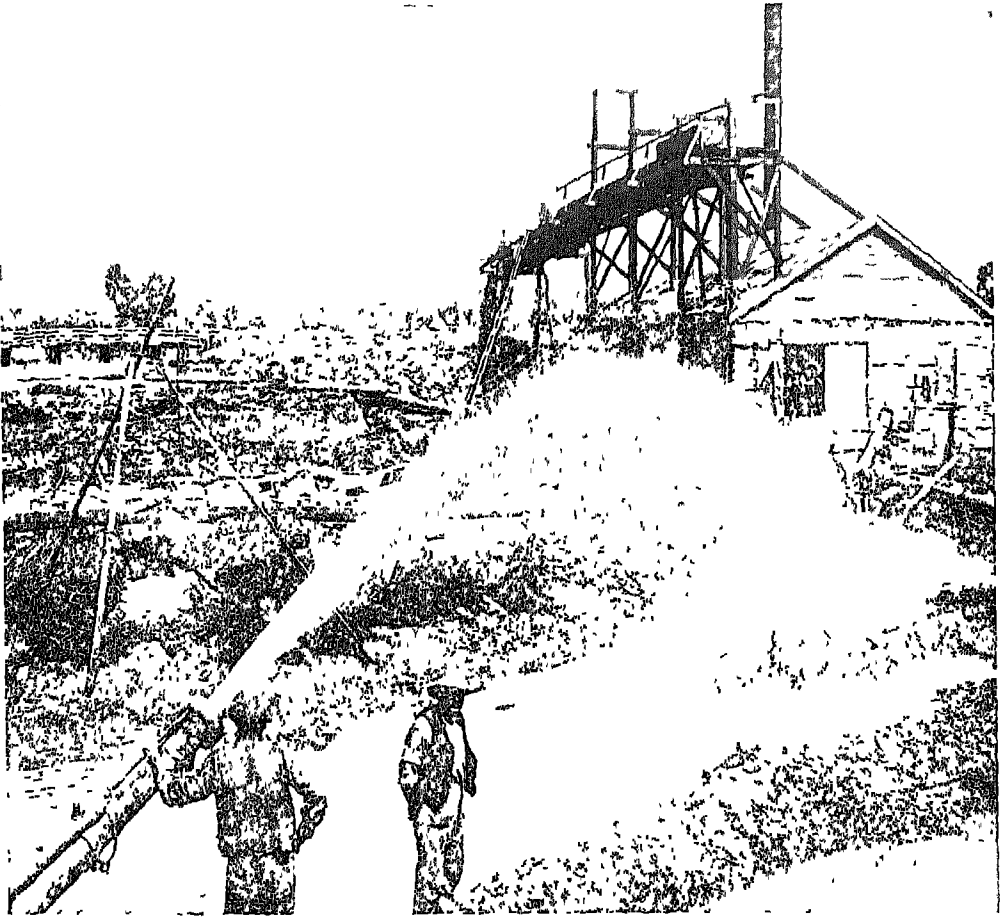
Other travellers may set sail from South Africa and they will arrive first at Hobart in Tasmania, an island to the south of Australia Miles of beautiful apple orchards are seen here and hop gardens like those in the south-east of England Many of the apples seen in English shops come from the apple orchards of Tasmania From Hobart, travellers will sail to Melbourne in Victoria and then take a train going westwards to Fremantle. Let us take a trip across Australia from Fremantle to Brisbane.

Fremantle is a seaport at the mouth of the Swan river and many large steamers call here. The railway line from Fremantle runs along by the river to Perth, the capital of Western Australia At Perth the river is wide and bordered by shallow beaches which make the city look like a seaside

[Reproduced by courtesy of the Commonwealth of Australia

"RAKE" OF TIMBER DRAWN FROM WESTERN AUSTRALIAN FOREST

resort. There are zoological gardens at Perth and a fine park full of beautiful flowers and trees. In the country around Perth hundreds of dairy cattle are kept and fine fruits are grown—apples, pears, apricots, peaches and plums. Many farmers, too, grow wheat South of Perth where plenty of rain falls are forests where giant jarrah and karri trees grow 300 ft high, with no branches lower than from 50 to 80 ft from the ground Jarrah wood is red and very hard, proof against insects and rain It is used for road blocks and bridge building. Timber worth a million pounds is cut down and sent away from these forests every year

As the train travels eastwards from Perth the land is drier On both sides of the line thousands of sheep are reared. Signs of rainfall are few. Instead of forests miles of Australian bush cover the land The bush in this region, called mallee scrub, consists of dwarf gum trees some ten feet high They have grey-green leaves which droop as if limp for want of water and turn their thin edges to the sun to prevent themselves from being dried up Much land once covered by low scrub now grows fine crops of wheat The farmers crush the bush under heavy rollers dragged by horses and dig or burn out the roots.

After many hours of travel farther inland the soil appears yet more parched and the land looks almost like a desert The mallee scrub gives place to dreary patches of mulga scrub and salt bush Mulga scrub is prickly and will grow in parts that are too dry for mallee scrub. Although this region of Australia is so parched the train stops at a large town called Kalgoorlie What could

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SLUICING FOR GOLD IN VICTORIA

have attracted people to make their homes in this desolate place? It was the discovery of gold which drew men here from all over the world in the hope of becoming rich

Gold is found in rocks that are very very old, and the tableland of Western Australia is made of some of the oldest rock in the world In New South Wales, a state in the east of Australia, the rocks are old too, though not so old as the western ones. Goldfields were first found at Ballarat in Victoria. A man who had been a gold digger in America had settled in New South Wales, and one day he found gold in a river valley The river had carried down the gold from the mountains The news soon spread. "Stockriders left their cattle, shepherds their flocks, schoolmasters their desks and clerks their counting houses" Many became rich beyond dreams, for in some parts the gold was found in lumps lying on the ground, or just below the roots of the grass More was washed out of the gravel in the river bed. To search for gold by digging or picking among rocks or under roots is called *fossicking* in Australia.

The road from Melbourne to the goldfield was soon covered with wagons, horsemen and diggers on foot Men had to camp out, cook, wash their clothes and do every-

thing themselves Watchmen were appointed to catch thieves, and the gold diggers, though rough, were not unruly or violent.

In a few years the surface gold had all been found, and many of the diggers turned to other work in Australia. Then more goldfields were discovered in the west around Kalgoorlie and Coolgardie and another gold rush began This time the diggers found the country waterless and hard to live in, but the goldfields were even richer than those in New South Wales had been One part of Kalgoorlie is called "The Golden Mile" because of the amount of precious metal that was found there. Gold worth millions of pounds has been found in Australia, but gradually the supply is failing Very little gold is obtained by hand now. It is taken from the rivers by dredging machines and cut out of the rocks by expensive machinery, after which the gold ore has to be separated from the lumps of rock in which it is hidden The towns that grew up round the goldfields remain, however, and the district round East Coolgardie is now the richest mining area in Australia Water is carried hundreds of miles in pipes from the coast and the gold towns have tramways, electric light and modern houses. Many of the inhabitants of Australia are engaged in mining for silver, copper and lead as well as gold

At Kalgoorlie travellers gaze at the tall chimneys rising above the rich mines, they also look carefully at the station clock, for all watches must be put forward as we travel eastwards Midday in eastern Australia is two and a half hours earlier than in western Australia, and at the chief stations along the line the clocks are put forward to the correct time Leaving Kalgoorlie the train runs eastwards almost as the crow flies for hundreds of miles over a great, dry plain. In the whole distance it does not cross a single stream of constantly running water This is called the Nullarbor Plain because it has no trees The earth is red and all around is bush—blue bush, salt bush, sage bush After a long, long time the wearisome view begins to change A lake region is reached, lying very low, actually below sea level, and at one time the sea may have washed all over this part. Some of the lakes are salt, and the surface of the land between them has a glittering layer of salt upon it In these dry lands camels are used as pack animals, and donkeys draw wagons, for donkeys can live on rough herbage. Presently the line curves southwards in the direction of Port Augusta on Spencer's Gulf A thousand miles lie between Kalgoorlie and Port Augusta, where the traveller changes train again and runs on to Adelaide, the capital of South Australia

Adelaide is a beautiful city surrounded by vineyards and orange groves. In the autumn (which is springtime in Europe) a pound of grapes can be bought for 1*d.* or 2*d.* and oranges, peaches and figs are just as cheap The fruit district extends from Adelaide into the state of Victoria, which ranks second to South Australia for its vineyards. The grapes are either made into wine or dried and packed as raisins and currants. The most noted town in Australia for raisins is Mildura in Victoria No doubt you have often had in your Christmas pudding raisins which came from the sunny vineyards of Mildura.

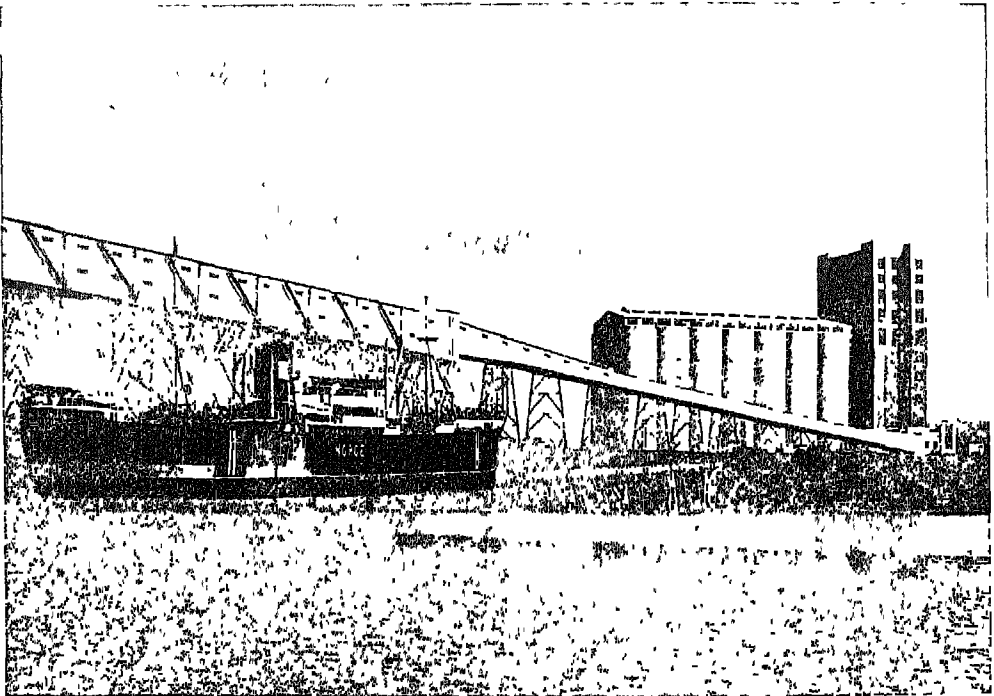
The vineyards of Australia are largely watered by channels which have been cut to bring the water from the Murray river.

There are not many large rivers in Australia. The greatest is the Murray, and its chief tributary is the Darling. Some men live all their lives along these winding, slow rivers. They travel down the banks making their living by fishing and doing odd jobs on the stations that they pass. On the rivers, too, are found families who live in barges and float down from town to town Little theatres and cinematograph shows travel about in this way The plain through which the rivers flow is flat and easily flooded. Rain seldom falls steadily in Australia. There are in most places long spells of dry weather broken by fierce storms, during which the rivers swell and

soon overflow. Sometimes hundreds of sheep are drowned. One explorer wrote that he camped one night beside a dry river bed and woke up in the morning to find it a deep and fast flowing stream.

From Adelaide the train travels south-eastwards towards Melbourne, the capital of Victoria Melbourne is a handsome sea-port. It has miles of firm white sand curving round the bays. At many places on the Australian coast are beautiful beaches like those at Melbourne, some of very large extent such as the Ninety Mile Beach in Victoria. Thousands of people are seen at holiday times paddling and surf bathing. On some parts of the Australian coast bathing is dangerous on account of the sharks. Sharks will not swim into the broken water of surf beaches but everywhere else they are a great nuisance. A shark can bite a man's body in half with one snap of its jaws. Many Australian children learn to swim almost as soon as they can walk, and the sea and sun turn their skins a coppery colour.

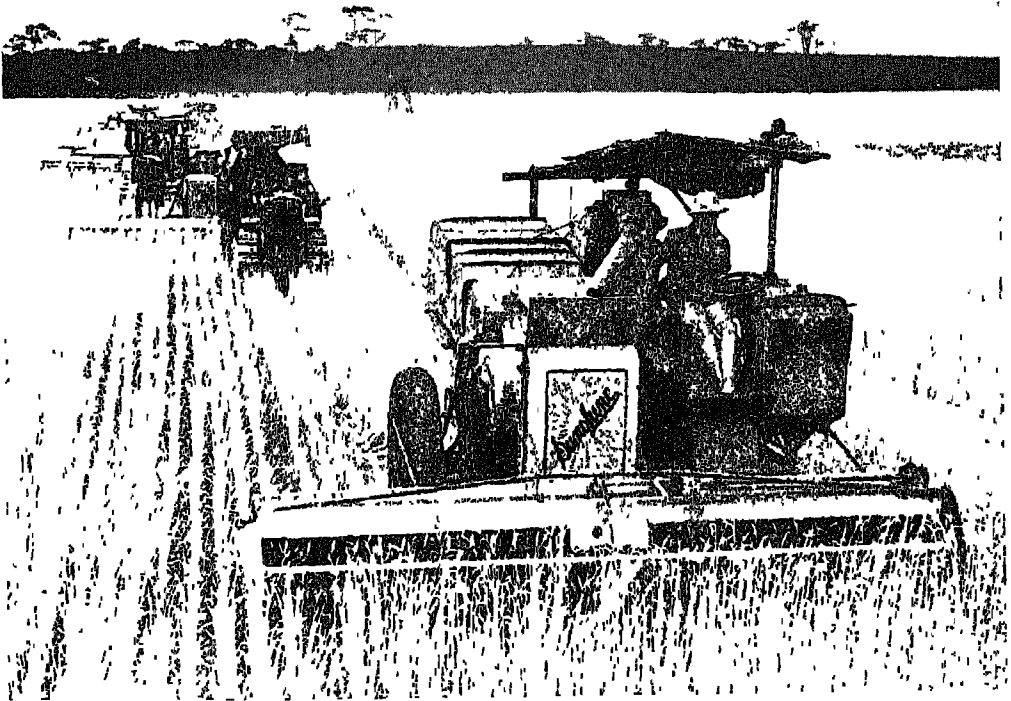
There are many fine buildings in Melbourne and large parks planted with oaks, elms, limes and other English trees. It is a great seaport, from which is sent to England and other lands much of the wool, wheat and fruit of Australia

Leaving Melbourne the train runs north-eastwards for many miles through the farming district of Victoria with its fields of wheat and oats, and its meadows with cows and sheep Much of this region, through which the train passes, was once mallee scrub, which has been crushed and burnt. At Albany the train crosses the river Murray and enters the state of New South Wales.

[Reproduced by courtesy of Grain Elevator Board

LOADING WHEAT FROM A SILO AT GEELONG

Here are some of the chief wheatlands and sheeplands of Australia. Here rain falls in the autumn, winter and early spring (April to October), and there is hot sunshine to ripen the grain in the summer (November to March) The farmer uses ploughs which turn many furrows at once and are pulled by teams of many horses or by petrol motors. His harvesting machine reaps and threshes the wheat and carries it in a bin as it goes along The wheat crop in Australia is gradually becoming more and more valuable as fresh land is cultivated and better grain sown New South Wales is the chief wheat growing state, and Australia ranks second to Canada in the Empire for wheat.

Behind the Australian Alps as we travel northwards is the famous sheep rearing plain known as the Riverina, the most notable sheep land in the world (We shall hear more about Australian sheep in the next lesson) Presently the train leaves the plain and climbs the gentle slopes of the Blue Mountains. Then it continues its journey rushing past wild gulleys and steep wooded slopes towards the east It stops at Sydney, the capital of New South Wales and the largest seaport in Australia. Here live more than one million people. The harbour of Port Jackson is one of the finest in the British Empire. Sydney is much like the large cities of England There are wide streets, lofty buildings, large factories for making boots and shoes, pottery, glass, furniture, machinery and many other things, beautiful parks and handsome squares About 100 miles from the city are the coal mines of Newcastle which supply coal for the factories and ships.

About 150 miles south of Sydney the wonderful new city of Canberra is growing up. You already know that there are several states in Australia and each of these states

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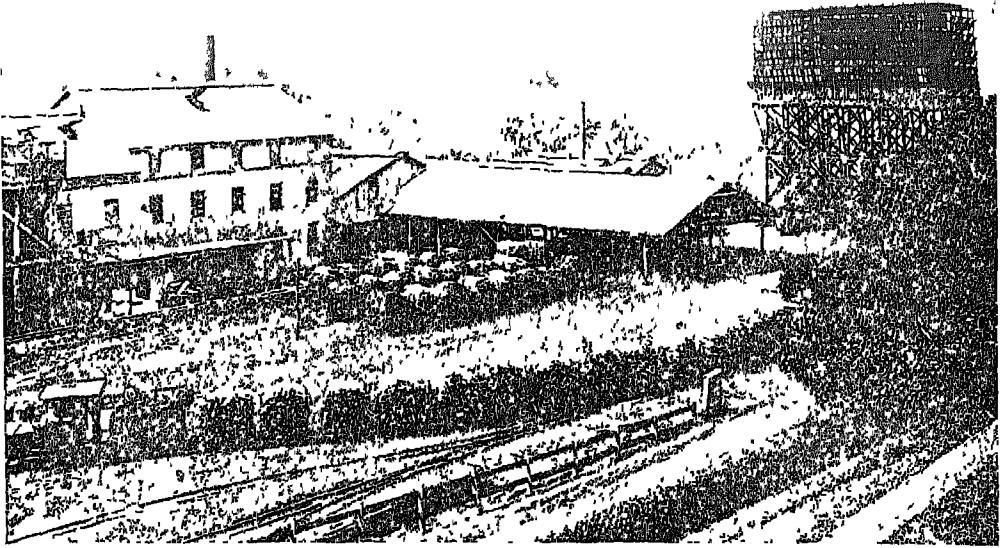
HARVESTING A CROP OF 7,000 ACRES OF WHEAT AT MILING, W A.

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SUGAR MILL, AUSTRALIA

manages a great deal of its own affairs But there are some matters which concern every man, woman and child in the land, so that it has been thought well to have a great building in a new city where men and women from every state can meet together in a Commonwealth Parliament and talk matters over The splendid new parliamentary buildings were opened at Canberra by the Duke of York in 1927 and a fine city is slowly growing.

Travelling northwards from Sydney our train passes through the coal-mining area of Newcastle the second port in the state.

As we continue our journey the weather becomes very warm for we are travelling all the time nearer to the equator. Now we see wonderful crops of maize and plenty of oranges and melons and such fruits as grow in sub-tropical lands. Soon we reach the state of Queensland, where we see white men busy in the sugar-cane plantations, for in Australia white men do most of the work even in the hottest part of the country. At length our train arrives at Brisbane, the capital of Queensland, where we can buy a ripe pineapple for a few pence

TEACHING HINTS

1. Map.—It is advisable to introduce the lesson with a general survey of the map of Australia It is not difficult for young children to understand the general build of Australia. The position of the Tropic of Capricorn should be clearly understood, and the children should be led to realise the marked contrasts between the climate of the tropical north and that of the temperate south Point out, too, the principal railways, so that the children will understand that most of the people live in the large cities of the east and south-east which are all linked by rail.

2. Local time.—Change of local time is a very important factor in making an east to west journey of any magnitude. The extremes of longitude are roughly 115° E and 155° E, giving a difference of 40° Every 15° of longitude mean a difference of an hour in time, and so noon occurs 2 hr. 40 min. earlier in the east than in the west Such a big difference cannot be neglected and adjustments must therefore be made.

3. The Golden Mile.—This was Australia's great gold region. Emphasise the fact that the original condition of the region was hot, dry desert, and show how it has been changed to a populous area in which the conditions resemble those of other large towns. The railway line and the water line (pipes to the coast) have been the chief instruments in the transformation

4. Port Augusta.—This is a great grain centre, not only for wheat from South Australia, but also for some of the crops from the western part of New South Wales.

5. Wheat lands.—Note that Australia has an annual production about half that of Canada It is the second region of the Empire for the production of wheat. Australia's chief wheat area is in the south-east corner, roughly south of a line drawn from Adelaide to Sydney, but not on the coast-lands, except near Spencer's and St Vincent Gulfs.

6. Dried fruits and wine.—Emphasise the fact that these products are obtained from regions which were originally very poor land. The great development is the result of the use of river water for irrigation purposes after the land has been cleared.

7. Coal.—The deposits of New South Wales rank as the most important in the southern hemisphere. A large quantity is exported to coaling stations which are not supplied by Britain

8. Brave Westerlies.—The air that rises in the belt of calms flows northward and southward high above the earth towards the poles, in the opposite direction to the trade winds, which are nearer the surface The influence of the earth's rotation causes these winds to blow in a westerly direction, and these wind belts are called the *prevailing westerlies* They cover the greater part of the two temperate and the two frigid zones. These winds are the most constant about latitude 40° in the southern hemisphere over the great stretches of ocean where there are few land masses, islands, mountains, etc, to alter their direction and change their strength, hence, the latitudes where these prevailing winds blow are sometimes called the *roaring forties*. The word "brave" is used because of the value of these constant winds to mariners.

9. Memory work.—(*a*) The Trans-Australian railway crosses Australia from east to west. (*b*) Forests of jarrah and karri trees grow near Perth. (*c*) Water is carried hundreds of miles in pipes to the goldfields of the west (*d*) White men only are wanted in Australia (*e*) Much fruit is grown in south-east Australia (*f*) Wheat ripens in summer, which is winter in England

10. Exercises.—(*a*) Where is Fremantle? (*b*) What is the name of the river on which Perth stands? (*c*) Where are the chief goldfields of Australia? (*d*) Why must clocks be altered when going by train across Australia? (*e*) What is mallee scrub? (*f*) How do settlers prepare the land for wheat? (*g*) Which is the chief town of the western goldfields? (*h*) Describe ways of obtaining gold. (*i*) Why is the Nullarbor Plain so wearisome to cross? (*j*) What is grown near Adelaide? (*k*) Say all you know about the chief river in Australia. (*l*) Why cannot people bathe in the open sea at Melbourne? (*m*) Where are the Australian Houses of Parliament? (*n*) Where would you like to spend a holiday in Australia?

IX. AUSTRALIA—SHEEP AND CATTLE

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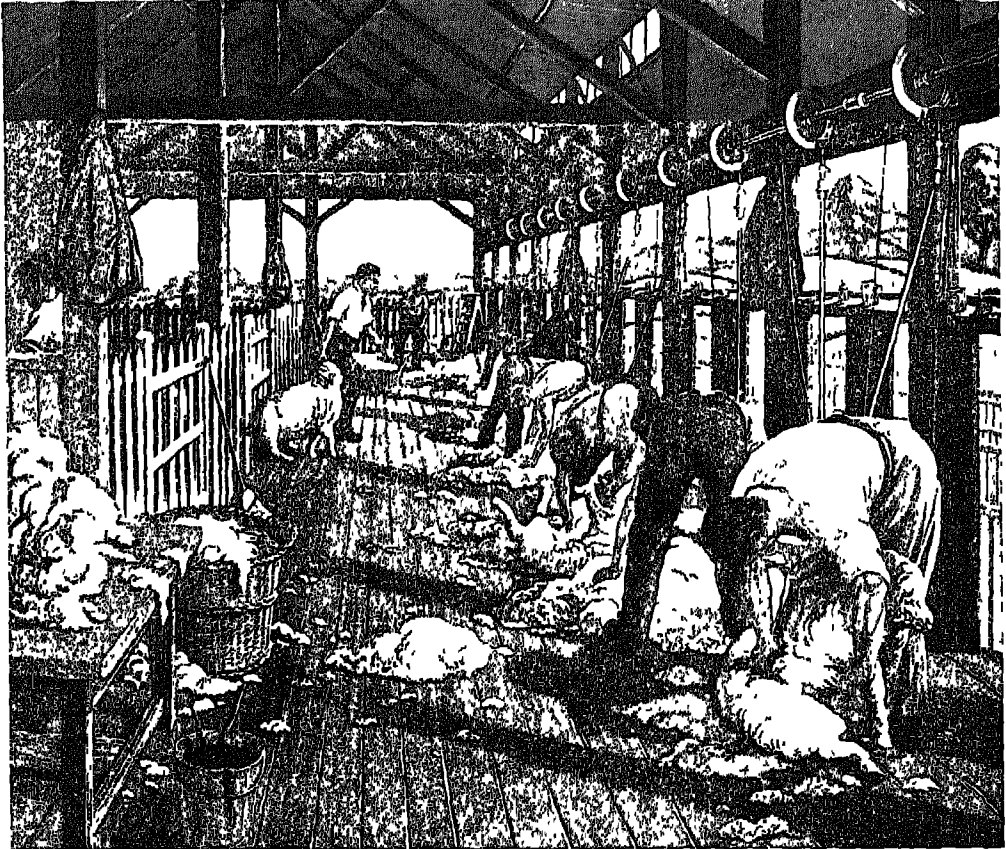

SHEEP-SHEARING IN AUSTRALIA

(Class Picture No 84 in the portfolio)

CHILDREN'S STORY

Sheep.—More than a quarter of all the wool in the world is grown on the backs of Australian sheep, yet just over a century ago there was not a sheep run in the continent. Settlers were trying to keep themselves alive on the coast of New South Wales and finding it very difficult to do so. When the British first went to Australia they found no potatoes or wheat, no cows, sheep or horses, and no animals such as deer or bison which could be killed for food. Early settlers took a few cattle with them and these fared better than their masters, for grass was found in plenty. To-day, Australia produces grain and fruit from her fertile soil and rich minerals from her rocks, but above all else Australia is the land of shepherds and cattlemen

CAMEL TRAIN IN AUSTRALIA

When the first little colony had established itself, animals and plants were sent for from over the seas A few sheep arrived from South Africa, some more cattle from England and some English grass seed Both sheep and cattle throve, and their numbers grew so large that in time pasture became scarce Then it was that three brave men found a way of crossing the Blue Mountains that stood like an enormous wall between the coastal plain and the regions inland In a short time two roads or tracks over these mountains were cut out, and a stream of people began to pass along them Each man took with him his family and all his possessions—wagons, tents, animals, household goods and food—and wandered into the grassy plains bordering the rivers of New South Wales. He squatted or camped at a spot that he fancied, put up a rough sort of house and set to work to make a living. He cut down the trees, burnt the stumps, ploughed up one or two small fields for wheat, oats and potatoes, and planted a fruit and vegetable garden near the house. He carefully tended his animals, and after two or three years of hard work the squatter often found to his joy that his flocks were increasing and success would be his In course of time he became the owner of a large sheep run and a comfortable home or station.

Why is Australia the best country in the world for sheep?

Sheep are not found, of course, in every part of Australia Some regions are too dry, some too wet, and some too hot for them The district which suits them to perfection is the Riverina which lies between the Murray and Darling rivers in New South Wales. This is the most famous sheep land in the world. The weather is warm all the year round, so that flocks can live entirely in the open air and always find plenty of grass to eat The mountains in the east shut out much of the rain, so that

the plains are fairly dry Sheep cannot live on damp land, as the wet gives them a disease of the feet called foot-rot. The rivers moisten the ground sufficiently for the growth of grass and also supply the sheep with drink. Many of the bushes and grasses that grow wild in Australia, such as salt bush, sage bush and kangaroo grass, are the best food in the world for sheep, and this is another reason why the wool of Australian sheep is so fine and silky. It is called merino wool and is very long. The increase in the numbers of sheep has been met by the building of railways from the coast to the chief centres of the wool districts. Thus the wool can be quickly sold and carried away for shipment to other parts of the world, and so the Australian wool trade continues to grow and prosper

Australia has over a hundred million sheep, and more than half of these are reared in New South Wales.

Sheep runs in Australia are vast stretches of land, though most are smaller now than they used to be. Some sheep farmers still have as many as 150,000 sheep on their runs. One of the first things to be done on a new run is to put up rabbit-proof fencing, which divides the run into large fields called paddocks, and also keeps out the rabbits. Rabbits are a pest in Australia. There are millions of them, and unless they are checked they eat all the grass needed for the sheep As there is no very cold weather they breed all the year round, and thousands of pounds have been spent in fighting them. One method was to poison them, but native birds and animals were killed as well Nowadays all pasture lands have to be enclosed in rabbit-proof wire netting, and the rabbits are also hunted down with dogs. They are driven to live in the worst parts of the country, and there they are being trapped and sent frozen to other lands, and their skins are made up into imitation furs. It is the work of special horsemen employed at the station to keep the rabbit fences in good order, and see that none is broken down These horsemen travel long distances, for the fences extend for hundreds of miles. In the west a rabbit-proof fence stretches across the continent from north to south.

WOOL VALUATORS IN SHOW ROOM

The men who tend the sheep are often away for many days and nights together, and they carry supplies of food with them. They have always plenty of meat to eat, and Australians generally eat three times as much meat, either mutton or beef, as people in England

There is always work to do on a station. Ewes with lambs must be cared for and flocks must be moved from one run to another. To guard the sheep against insect pests they have to be dipped in water containing some disinfectant. (See Class Picture No. 87 in the portfolio) Kangaroos must be kept out of the paddocks, for they eat food wanted by the sheep, and any dingoes, or native dogs, prowling around must be shot, for they will kill a dozen sheep in a night The wool is sheared or clipped off the bodies of the sheep by machinery, then it is sorted and packed in bales, which are pressed to make them as small as possible. They are loaded on wagons drawn by horses or bullocks, or on motor lorries, and taken to the nearest railway station. Some bales are sold in the large Australian cities such as Sydney and Melbourne, where woollen factories have been set up Others are bound with iron hoops and packed on board ship to be sent to England and other countries

By far the greatest numbers of Australian sheep are reared for wool, but some flocks are kept for their meat. These are killed first and sheared afterwards, or they may be skinned, as some countries buy sheepskins with the wool upon them The great ports of Melbourne, Sydney and Brisbane have warehouses packed with bales of wool, kegs of tallow made from the fat of the sheep and stacks of sheepskins Close to the warehouses stand large freezing rooms in which chilled or frozen mutton can be kept until the steamers come to carry it to Europe.

Cattle.—Cattle are reared in Australia both for their beef and for their milk. The beef cattle are found in the hot wet parts of the country, chiefly in Queensland. Their pastures are hundreds of miles in length, and cattlemen have to be expert horsemen with good horses, to cover such long distances. The cattle are often driven several hundred miles from their pasture grounds to the nearest railway or port. They feed and fatten as they go along, taking months on the journey. Arrived at their destination they end as frozen beef, canned beef, or extract of beef. Their hides are tanned with Australian wattle bark and made into boots and shoes and other leather goods.

The dairy cattle cannot stand so much heat as the beef cattle They are mainly reared on the coastal plains of New South Wales and Victoria They feed on rich pastures and give excellent milk. The milk is put in churns which are loaded on to wagons and sent to the nearest creamery or butter factory. Here the cream is separated from the milk and made into butter and cheese, and the skimmed milk left behind is sold for feeding pigs for the bacon factories. Australian butter is now beginning to rival New Zealand butter, and Australian cheese is also coming to the front, although the quantities made are much smaller than those sent away from New Zealand and Canada Tins of dried and condensed milk are also exported.

Australian dairy farmers are sometimes troubled by spells of dry weather which may wither the grass Then the cattle will starve unless the farmer has a reserve supply of fodder. He therefore builds in a sheltered spot brick or concrete towers called silos and fills them with lucerne, maize, wheat, oats and other grasses, cut green. This "hay" keeps a long time, and cattle, sheep and horses are very fond of it

About one-fifth of all the cattle in Australia are dairy cows, and from the milk nearly three hundred million pounds of butter and over thirty million pounds of cheese are made in a year.

TEACHING HINTS

1. Pastoral and dairying production.—The importance of pastoral and dairying produc-

tion in Australia is shown by a comparison of the following figures—

Total value of dairying and pastoral production, £173,000,000.
Total value of all agricultural production, £84,000,000.
Total value of all mineral production, £27,000,000.

2. The following are the chief products obtained from sheep runs:

Wool—(*a*) by annual clip.
(*b*) from skins of slaughtered sheep
(*c*) exported on sheepskins
Mutton and Lamb—exported frozen.
Tallow—obtained from the fat.
Skins—to be made into leather.

The chief products obtained from the cattle pastures are:—

Beef—exported frozen, tinned, or concentrated.
Milk—butter, cheese, evaporated and tinned milk.
Hides—for leather.
Bones—for various purposes.

3. Hides and skins.—Cattle and sheep rearing has led to a trade in hides and skins, and there is an export of these commodities to the value of over £8,000,000 a year. The largest trade in this respect is in sheepskins with wool, of which France is the chief purchaser. Rabbit skins, opossum, wallaby and kangaroo skins are also exported The possession of large flocks and herds has led to the establishment of tanneries in many parts of Australia. The manufacture of woollens and tweeds is carried on, the production of the woollen mills of Australia consisting chiefly of tweed cloths, flannels and blankets

4. Frozen meat.—Perhaps the most important event in the history of the Dominion of Australia occurred in the year 1882 when the sailing ship *Dunedin* carried the first consignment of frozen lamb and mutton to London.

5. Tallow.—This is generally obtained from mutton fat by melting and separating by pressure. Suet is a natural form of tallow. When pure, tallow is white, tasteless and insoluble in water. It is used in the manufacture of soap and candles.

6. Memory work.—(*a*) Australia stands first in the world for wool. (*b*) An Australian sheep farmer's home is called a station (*c*) Australian merino sheep give the finest wool in the world (*d*) Sheep runs are enclosed by rabbit-proof fences. (*e*) The sheep are tended by horsemen. (*f*) Tallow is made from the fat of sheep (*g*) Beef cattle and dairy cattle are reared (*h*) Chilled beef, canned beef and extract of beef come from Australia (*i*) Wool, chilled mutton, tallow and hides come from Australia.

7. Exercises.—(*a*) Why did the first settlers in Australia find life hard? (*b*) On which lands in Australia are the best sheep reared? (*c*) Why do sheep thrive in Australia? (*d*) Of what use are the railways to the sheep farmers? (*e*) Why are the sheep runs fenced with wire? (*f*) What are paddocks? (*g*) What work has to be done on a sheep farm? (*h*) What is a dingo? (*i*) Tell all the ways in which sheep are useful. (*j*) Why do men keep large herds of cattle? (*k*) What are dairy farms? (*l*) How is it that people in England can get butter from Australia? (*m*) How do farmers in Australia guard against spells of dry weather?

X. AUSTRALIA—LIFE IN CITY AND COUNTRY

CHILDREN'S STORY

A JOLLY poem has been written about the land on the other side of the equator—a poem called *The Opposite Side*. (See page 231.) In it the writer pretends that toys live in houses and play with children. Tops spin boys round and round; shuttlecocks toss little girls in the air; everything, in short, is exactly the opposite of what it is in England. It is amusing to read such pretty fancies, but you must not think that they are true. If you do, you will be disappointed should you visit *The Opposite Side* some day, for you will find that Australia is in many ways like England, as the people who live there are mostly of British descent.

In the streets of the great cities people ride in electric trams Shops, hotels and banks, many storeys high, stand along the main roads, many of which are very wide. Gum trees are planted along the pavements because they offer grateful shade from the hot sun Turnings out of the streets lead to open spaces full of trees and flower beds, and to large public parks. Racecourses and cricket grounds adjoin the cities Because of the warm weather and sunshine Australians are very fond of sports, and summer games are played all the year round

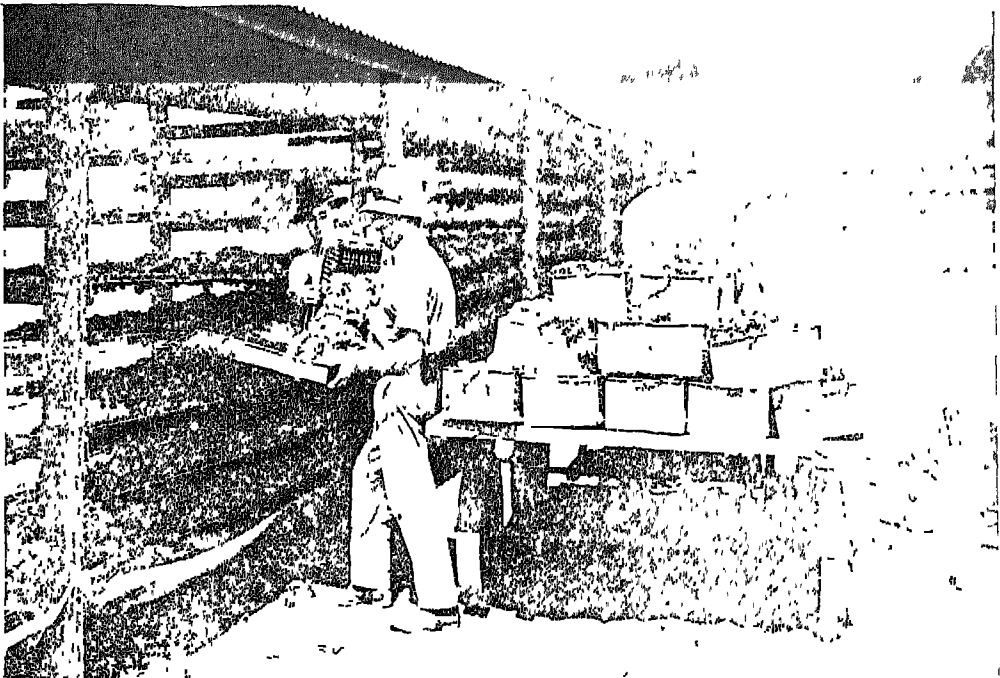
The large country houses are built of wood with eight or nine rooms in each and four deep shady verandahs, one for each side of the house On these verandahs in summer the family spends most of its time, dining, reading, writing and sewing. At night the family sleeps on the verandah, the beds being screened by gauze to prevent attacks from mosquitoes When the sun rises in the morning magpies call to each other with clear, shrill voices, and the sound of the kookaburra's laugh awakens sleepers The kookaburra is a bird with mottled grey plumage. It is about the size of an owl, and is sometimes called the laughing jackass because of its mocking note which is like a man's loud laugh.

On the hillside at a distance from the house may be seen groves of gum trees, whose trunks in spring are of a beautiful pinky white colour As the season advances and the sun beats more and more fiercely on the trees, the bark deepens in colour into red and brown and then it strips off and shows the new fair white bark underneath. Most of the trees in Australia shed their bark and not their leaves In the valley at the foot of the hill are clumps of wattles, about as large as apple trees. In spring these are covered all over with soft blossoms of the brightest yellow

All around the house are smooth green lawns and flower beds, in which hundreds of flowers are blooming. Sometimes as many as sixty different sorts of roses grow in one garden, and they blossom all the year round, so warm is the climate. Flowers of England, Italy, China and India as well as native Australian blooms are in the beds. A tennis court stands beyond the garden, and around its high wire fences climb vines Adjoining the tennis court is an orchard containing orange and lemon trees, apple, pear, peach and custard apple trees, and strawberry and raspberry canes. Custard apples are fruits which are soft inside and taste like custard. On the far side of the orchard is a meadow or paddock for the horses, which are not kept in a stable except on very wet cold nights. Many Australians have built similar homesteads for themselves, and this prosperous life has grown out of the huts, the tiny farms and hard work of their great-grandfathers the squatters.

When building their houses the Australians cover all the ground area with cement or with asphalt, and take care that no beams touch the earth. If they do, the wood will be eaten by white ants or termites. These insects have their homes underground and run about in all directions to eat up whatever wood they can find. They eat beams, floors and even furniture in such a way that the mischief is not discovered until the house suddenly falls in. A beam will appear to be quite sound when really its whole heart has been eaten out by termites. Fortunately they cannot burrow through brick or stone In Queensland the houses are often built high up on piles or heavy posts On the top of each pile, between it and the building, is an iron plate with the edges turned downwards. This plate prevents the ants from entering the home, and the space between the house and the ground allows for a free passage of air which keeps the building cool. Sometimes the space underneath the house is large enough to be used as a garage

Those farmers who possess hundreds of acres of land call their homestead a station, and this may stand a hundred miles or more from any town. It is generally a comfortable bungalow made of hard wood such as jarrah, and linked up with the nearest town by telephone. The house is lighted either by electricity obtained from moving water, or by acetylene gas manufactured on the estate. Thus, though the farmer is a very long way from a city, he is not without comforts, and nowadays many farmers own motor cars which are of great assistance in their work.

Children in Australia have a very happy life They grow up more quickly than English children, because from an early age they have to take a share, however small, in the work. At the same time they have many more holidays and more sunshine in which to enjoy them The great sport of

[Reproduced by courtesy of the Australian Publicity Board

PLACING SULTANAS IN DRYING RACKS

holiday makers is picnicking, and picnics are seldom spoiled by rain When they go for a picnic Australians always supply themselves with plenty of tea, for they are great tea drinkers They boil water in a "billy" or tin pot over a fire of sticks and make tea several times during the outing Even near the large cities there are many lovely spots for picnics in Australia. In the spring the bush is bright with all sorts of curious flowers, white, blue, purple, pink and brown One flower, the waratah, is the handsomest wild flower in the world. It grows wherever there have been bush fires. The flower is of a brilliant red colour, stands on a high stalk, has petals like flannel, and is as large as a grapefruit The gum trees and wattles give out a refreshing scent Near the coast are sandy beaches Oysters can be taken from the rocks and fish from the sea Thousands of people may be seen at all hours of the day on the dazzling beaches of Sydney, which is the home of surf-bathing.

All children in Australia have to go to school, so that everyone is taught to read and write. Even in the most distant parts the Government carries children free of charge on the railways, or sends a motorbus to collect them so that they shall not lose their education Families that are quite alone and very far away are encouraged to employ a governess. In the bush districts of Australia the children ride to school on horseback, sometimes three or even four on a horse. In the cities the schools are very good. All the Government schools are free, and clever children can win scholarships which pay for their education at high schools and universities

Australian children play at all the usual British games—tops, marbles, skipping, hoops. Cricket is the great national game and schoolboys everywhere are keen players The Australian Cricket Team holds the championship of the world. Tennis and football are played also. Like the young Canadian, the youthful Australian often spends his holidays camping out. Boys can sail a boat and carry a gun when they are fifteen or sixteen years old, and they go out in parties hunting in the bush or sailing on some river or inlet of the sea.

Animals and birds.—We have already seen that cattle, sheep, horses, pigs and rabbits are the most numerous animals in Australia, but there are, besides, some strange animals and birds, because Australia is a very old land which has long been cut off from the rest of the world. The best known wild animal is the kangaroo When the English and Australian cricket teams meet they are often pictured as a cheerful Lion and Kangaroo shaking each other by the forefoot In front of its body the mother kangaroo has a pouch in which it carries its young until they are old enough to look after themselves. The kangaroo's forelegs are small, its tail and hindlegs very powerful, and these it uses for rushing over the country in huge hops Although a kangaroo is generally harmless, it will fight when at bay, standing on its hindlegs and tail with its back to a tree. It can tear a dog to pieces with its forelegs. You must not think, however, that kangaroos can be seen anywhere in Australia Like the Blackfellows, they live far away from towns and people, and the greater number of Australians have never seen either a Blackfellow or a wild kangaroo White people do not care for the flesh of the kangaroo, but the tail makes nourishing soup, the skin supplies shoe leather and can also be made into rugs and overcoats.

The chief Australian animals living in trees are the koala or native bear and opossum The koala is a quaint little creature resembling a large, fat cat with eyes like saucers. It spends most of the day in a lofty tree trunk fork. It is quite harmless and feeds on gum leaves. (See Class Picture No. 85) The opossum is hunted for its beautiful grey fur. The Tasmanian opossum has black fur which is very valuable, and hunters are fast killing all the opossums in the country. They are often caught in snares. Bush boys find a tree with scratched bark, showing that an

opossum family lives high up in a hollow of the trunk, and they fasten a noose to the tree The opossum sleeps in the daytime and when he comes down at night to feed or drink he is caught in the snare Some opossums are shot by hunters

Another curious animal of the country is the echidna or anteater. It is covered with sharp spines and has no teeth, but from a long snout it shoots out a sticky tongue to seize the ants which form its chief food The echidna lays eggs but does not sit on them. They are hatched in its warm pouch, and there the little ones remain while they are young.

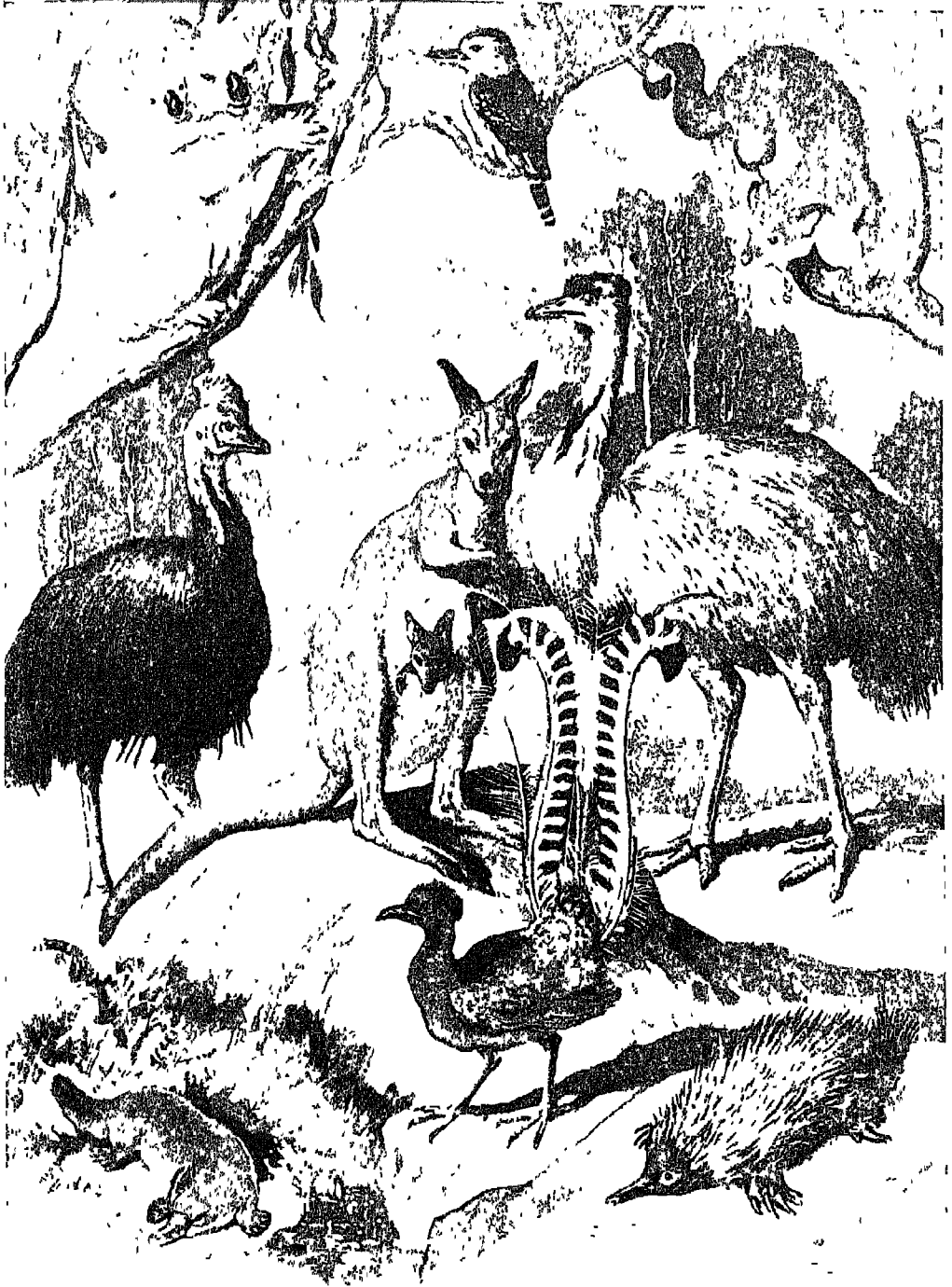
One of the strangest animals in the world is the platypus, duckbill or duckmole We are told that once upon a time all mammals laid eggs, but there are only two animals now left which lay eggs, and the platypus of Australia is one of the two, and the echidna is the other. The platypus is an animal about eighteen inches long, with fur like that of a mole, with a short tail flattened like a beaver's, with its four feet webbed, but with a duck's beak having a fleshy covering. The duckbill's fur is dark brown above and whitish below the body, the eyes are small and deep set like those of a mole, the large openings for ears are not seen above the fur, but the animal's hearing is acute.

The home of the platypus is in parts of certain rivers in Tasmania and Australia It chooses a spot near a deep pool in the river, where it builds an underground burrow leading from the water, there is one unseen entrance from the water and another entrance from the land In the depths of the burrow the mother platypus lays and hatches two eggs. The food consists of water animals, worms, insects, and little shelled animals. It is very difficult to get near a platypus, for it is exceedingly timid and cautious (See the Class Picture illustrated on the next page)

The largest of the Australian birds are the emu and the cassowary. The emu is found only in Australia and some islands near. It is the second largest bird now living, being next in size to the ostrich. The hen emu is larger than her mate, both sexes are valiant fighters, but the hen is famous for the strength and speed of her blows The emu is rather like an ostrich but its wings are smaller, it escapes from danger by its swiftness in running. The feathers are brown and slender, spotted with grey, and the young birds have long stripes of a paler colour. In common with all wild life in Australia, the emus have suffered from the coming of man, and are now rare except in the wilder parts of the country. They live in small flocks, and feed chiefly on fruits In Queensland the prickly pear was introduced and spread very rapidly; it has been found that the emu thrives wherever the prickly pear grows, for it eats the fruits, and is most numerous and in finest condition where the prickly pear is thickest. Emus swim well, and take to the water readily.

Like the emu, the cassowary is akin to the ostrich. It is smaller than the emu, and stands about five feet high to the top of its head. A cassowary is easily distinguished from an emu by the horny helmet on the head covered with a thin skin The head and the upper part of a cassowary's neck are bare of feathers, and usually the skin of the neck is brightly coloured The feathers look like coarse hair because they are so narrow, and they are black and glossy. The small imperfectly formed wings have each about four black quills. Like the emu, a cassowary has stout strong legs for running swiftly, and fights by giving powerful and deadly blows with its great clawed feet. Cassowaries do not keep to the open, they are shy and live secretly in the forests and undergrowth.

TEACHING HINTS

1. Custard apple tree.—This is a small tree native to Brazil It has aromatic lance-shaped leaves and flowers that are brown outside with yellow centres. The fruit is the size of a tennis ball, and is made up of many

WILD ANIMALS OF AUSTRALIA

Above KOALA—KOKABURRA—OPOSSUM
Middle CASSOWARY—RED KANGAROO—EMU
Below DUCK-BILLED PLATYPUS—LYRE BIRD—ECHIDNA

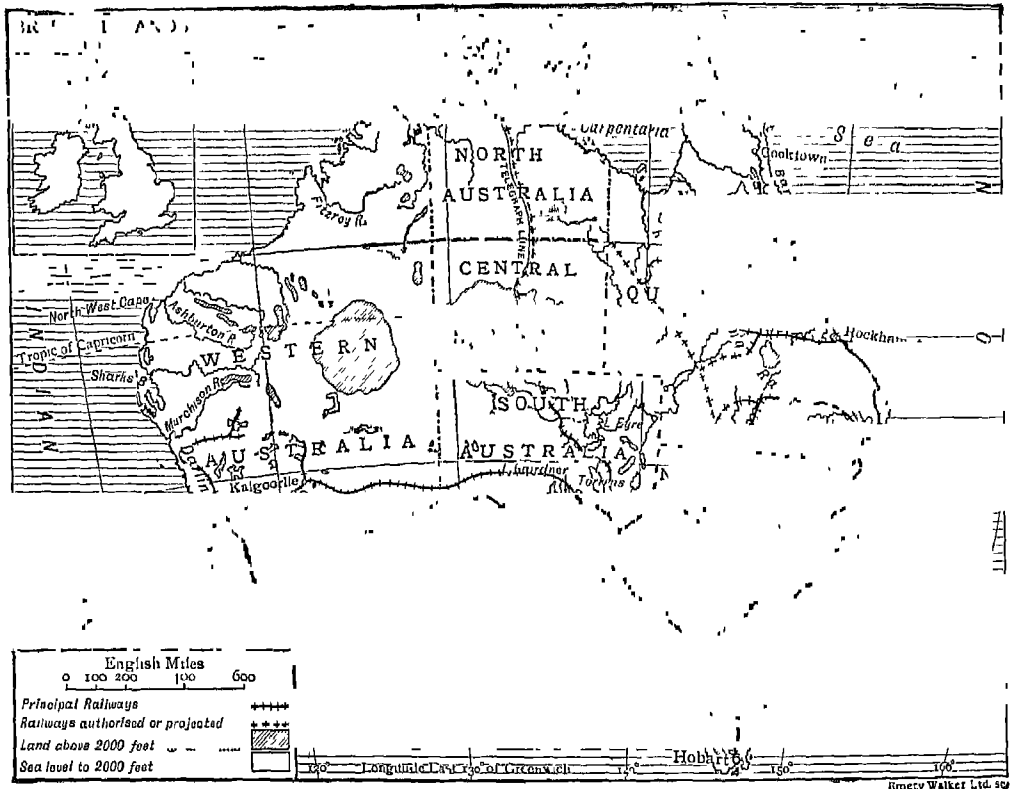
(Class Picture No 85 in the portfolio)

cells completely fused, as shown by the netted marking of the rind. The custard apple is delicious when not over-ripe

2. Wattle.—This name is given to various kinds of *Acacia* which is a spiny shrub that grows on the edge of deserts The minute flowers are gathered into crowded spikes. The leaves, divided into many leaflets, have a feathery appearance, and turn their edges upwards and downwards to resist the heat of the sun. Some kinds furnish drugs, gums and tanning material The trees were so called from wattles, or hurdles, which the early settlers made of the long, pliable branches of or the split stems. They are sometimes grown in British greenhouses for their beautiful masses of yellow, red, or white blossoms

3. Memory work.—(*a*) Australian cities have wide streets and many open spaces. (*b*) Country houses are built with verandahs all round them. (*c*) Many people spend their holidays at the seaside or they go picnicking or camping (*d*) The kangaroo is a native animal of Australia. (*e*) The gum tree is a native tree of Australia.

4. Exercises.—(*a*) Why can Australians play cricket on Christmas Day? (*b*) How do lonely stations keep in touch with towns which are far away? (*c*) Tell all you know about the kangaroo. (*d*) Tell all you know about the rabbits of Australia. (*e*) Tell all you know about a country house in Australia (*f*) What would you expect to do at holiday-time in Australia?

GENERAL MAP OF AUSTRALIA (NOTICE THE SIZE OF THE BRITISH ISLANDS)

XI. NEW ZEALAND–HISTORY AND PEOPLES

PICTURE REFERENCE

COOKING IN A HOT SPRING, NEW ZEALAND

(Class Picture No 86 in the portfolio)

INTRODUCTION

When discovered in 1642 by Tasman the group of islands called New Zealand was found to be inhabited by a race of Polynesians called Maoris. Tasman's first view of New Zealand was the west coast of South Island, which he described as "a high mountainous country" He continued his voyage along the west coast of North Island and gave the name of Cape Maria van Diemen to the north-west extremity. At no part of the journey did he land in the new country

The next great event in the modern

history of New Zealand was the visit of Captain Cook in 1769 He sighted land at Young Nick's Head, and on October 8th anchored in Poverty Bay He coasted round North, South and Stewart Islands, but had the idea that South and Stewart Islands were one land mass. From New Zealand he sailed to Australia on March 31st, 1770, leaving the land at Cape Farewell.

Cook not only determined that New Zealand was not part of a polar land mass, but also he gathered much information concerning the nature of the islands and their inhabitants. He described the country as being "well adapted for the plentiful production of all sorts of the fruits, plants and corn of Europe", and so it has proved.

In 1772, an enterprising French navigator, M. Marion du Fresne, visited New Zealand and, in an encounter with the Maoris, he and sixteen others were murdered.

During his second voyage Cook again visited New Zealand, reaching Dusky Bay, near the extreme south-west, on May 4th, 1773 He spent some time examining the shores and the forested country near at hand; he got into touch with the people, and for their benefit planted a garden with English vegetables. After visiting some of the islands of the South Seas, Cook returned to New Zealand for supplies of wood and water, and to visit the Maoris on the east side of North Island On this part of the journey he sailed through Cook Strait and then set his course for the polar ice, twice crossing the Antarctic Circle. On the homeward journey, in 1744, New Zealand was visited for the third time.

During his last great journey Cook reached New Zealand again in 1777

The first Europeans were left in New Zealand in 1792, when Captain Raven of the *Britannia* landed a sealing party at Facile Harbour on the west coast of South Island After this small detachment of people had remained for a little over a year on the island, they were called for and taken away. During the next few years, whaling stations were established at several points on the coast, and periodic visits were made by whaling vessels. In 1814 the first missionaries, headed by Samuel Marsden, arrived at the island, and in 1815 a mission station was established at Rangihoua, in the Bay of Islands.

For twenty years progress was hindered by murderous wars between the tribes. At length the persevering teaching of the missionaries checked the fighting Peace and Christianity gradually became established, and English men and women went out in parties as settlers. Captain Hobson was the first governor, he hoisted the Union Jack in the country, which was placed under the government of New South Wales. The Maori chiefs acknowledged Queen Victoria after receiving a promise that they should keep their lands. Even then it was long before Englishmen and Maoris settled down peaceably together There were many quarrels over the government of the country, and fighting continued for several years. At length, in 1840, New Zealand was declared a self-governing country, the Maoris surrendered their weapons, and settlers were able to concentrate their attention upon sheep farming. The discovery of gold in North and South Island led to a rush of fresh settlers, and a few large towns gradually grew up round the coasts. Real prosperity came to New Zealand with the invention of a dredger for obtaining gold, and the discovery of a method of chilling meat and sending it overseas in cold storage.

Population.—The population of New Zealand proper (exclusive of Maoris) is 1,688,000, and the Maoris number some 106,000 The following table shows the concentration of people in the towns; the population is given in round numbers:

Auckland	282,000
Wellington	183,000
Christchurch	159,000
Dunedin	88,000
Palmerston N	29,000
Invercargill	29,000

More than 40 per cent. of the people of North Island live in two towns, and nearly 40 per cent. of the people of South Island live in two towns. The four towns are ports.

Reference has already been made to the Maoris, the original inhabitants of New Zealand. They are a Polynesian people who probably migrated by way of Malaya to the Pacific Tradition runs that they dwelt originally in a country named Hawiki, and that one of their chiefs after a long voyage reached the northern island of New Zealand. Pleased with what he saw, he returned home and persuaded others to go to the new land

The Maoris are steadily increasing in numbers, but the gain in numbers has been accompanied by a considerable dilution of blood North Island is the home of 94 per cent. of the Maoris.

CHILDREN'S STORY

Twelve hundred miles south-east of Australia lies a group of islands called New Zealand These islands are so far away from

[Reproduced by courtesy of the C.P R.

Maori Girls in Native Costume, New Zealand

other lands that little was known about them until Captain Cook made his celebrated voyages to them in the years 1769-1777. The islands were called New Zealand because they were first discovered by Tasman, a native of Holland, so they were named after the province of Zealand in that country When travellers first visited the islands they found them inhabited by people called Maoris, but to-day most of the people of New Zealand are descendants of the English, Scots and Irish, and especially of the Scots The islands are about five-sixths the area of the British Isles, but at present there are about one and three-quarter million people living there, while there are over forty-seven million people living in the British Isles. New Zealand is a country where there is plenty of room People are not crowded together in great smoky cities as they are in parts of England, although more than half of the New Zealanders live in the six chief towns. But even in the towns there are many more open spaces and many more gardens than there are in the old cities of England The climate of New Zealand is a good deal like the climate of southern England only there is more sunshine in New Zealand. You can easily understand that where there is plenty of space for sport and games, and where there is plenty of sunshine, the people are particularly strong and healthy, and New Zealand is noted as being the most healthy country in the world.

Strong, healthy people love games, so it is little wonder that the favourite game of boys and men in New Zealand is Rugby football. Of course other games are played too—cricket, hockey, lacrosse, golf, bowls—just as they are played in England, but Rugby football is the great New Zealand game. There are many things to do on holiday in New Zealand There are lofty forest-clad mountains, numerous swift running rivers, many lakes, and there are deep fiords along the coasts New Zealanders, then, can enjoy swimming, sailing yachts, fishing, picnicking, camping and shooting

As in Australia, there were no cattle, sheep, pigs and horses in the country until they were brought there from abroad, but now these animals thrive in great numbers, and to-day most of the people depend on the sheep and cattle for their livelihood. In English shops you will often see the labels. *New Zealand Butter*, *New Zealand Cheese*, *Imperial Honey*, *New Zealand Apples* and *Canterbury Lamb*. Canterbury is the name of a district near which are wide stretches of grasslands on which thousands of sheep are reared, and much of the meat of the lambs and sheep is frozen and sent in ships to England and other countries. Before we take a trip round the islands let us hear a little about the clever Maoris who lived there before the British entered the country

The Maoris.—When Captain Cook visited the islands he found the people living together in villages fenced round with boughs and trees lashed together He said that they were tall, dark-skinned people, "with black hair, thin black beards and white teeth." They tattooed their faces and bodies in wonderful patterns, and "wore ornaments of stone, bone and shells at their ears and about their necks." The men generally wore long, white feathers stuck upright in their hair

The Maoris were then a very warlike people, but they now live peaceably and keep the British laws.

The Maoris are clever people. Most of them can read and write, some are rich and well-educated gentlemen, and their children attend school. They are allowed to vote and send their own members to the New Zealand Parliament. Those who still live in native villages have learnt the ways of the settlers. Some own large herds of sheep and cattle, others cultivate the land. Their favourite food crop is the sweet potato, they are fond of pork, and they eat a good deal of fish, which is caught in abundance in the lakes and rivers. Their cooking is now generally done in English fashion, but in

[Reproduced by courtesy of the High Commissioner for New Zealand

MAORI WOMAN AND CHILD, ROTORUA, NORTH ISLAND, NEW ZEALAND

North Island, where the Maoris mostly live, there are some hot springs, and when a steam-hole is near the Maoris use it for cooking their food. The hot springs, too, are very useful in other ways, for in them the women wash their clothes and the people bathe Most of the Maoris to-day dress like the British, but at one time they made all their own garments from the strong fibres of a plant called New Zealand flax which grows luxuriantly in that country. In the picture you will see three women cooking their dinners in one of the hot springs, and you will notice that they are dressed in garments made of New Zealand flax. They grow the flax and weave the clothes themselves on rods stuck into the ground After-wards they dye the garments brown and

black with dyes made from the bark of trees The clothing is in two parts—cloaks or capes which are hung round the shoulders and fastened in front by strings or bone pins, and skirts that are tied round the waist. They do not wear hats, or shoes and stockings, but they sometimes wear sandals. The Maoris are clever at carving wood and stone. The fronts of their whares or houses are often carved, and they also make quaint little figures out of greenstone to sell to visitors

The Maoris were very clever canoe-voyagers The last tribes of them came to New Zealand in canoes from distant islands about the time that Edward the Black Prince was fighting in France

Their canoes are hollowed out of the trunks of trees They sail them with great skill and are good swimmers as well When water sports are held the Maoris join in canoe hurdle races. The hurdle is a pole fastened across to two posts and standing up a little out of the water In the race the Maoris paddle quickly towards the pole. When near it they run to the back of the canoe and tilt it up, so that the nose glides over the pole. Then they run forward and

[Reproduced by courtesy of the High Commissioner for New Zealand.

FLAX CUTTING, NORTH ISLAND, NEW ZEALAND

the canoe slips down on the other side, sometimes turning over as it goes and throwing its owner into the water Besides swimming and sailing, the Maoris like football, wrestling, shooting, and any kind of life in the open air

Singing and dancing play a large part in their lives When visitors go to see the wonderful hot springs of New Zealand the Maoris in some of the villages dress up as they did in days gone by and perform a war dance in which they look very fierce and pretend to rush upon an enemy. Some of the poetry in their songs is very musical, but there is no tune in their singing It is a long chant, with the voice falling at the ends of the stanzas The singers take breath anywhere, so there are no general pauses, and the chant seems to go on and on without a break for a very long time Here is a Maori song sung by a watcher at a fort·

"Be watchful!
O be wakeful!
Be watchful this defence!
Be watchful that defence!
The enemy shall be caught
Outside the fortress walls
Fighting and struggling,
Be watchful!"

When two Maoris meet, they clasp hands and press their noses together. The British and the Maoris are good friends now The white men fought against them in the past and learned to honour them for their bravery. Now the two races are fellow countrymen, sharing in the work and government of the land.

TEACHING HINTS

1. The globe.—Before talking about the Maoris to the pupils it is necessary to point out on the globe New Zealand, the chief islands, the surrounding seas, and the position of New Zealand with regard to Australia and the British Isles Its discovery and history might then be mentioned, the

NEW ZEALAND

points being selected by the teacher from the "Introduction." From the accompanying map the teacher will be able to draw a blackboard sketch of the islands

2. Maoris.—The contrast between the natives of Australia and New Zealand is very striking and should be emphasised. In Australia the Aboriginal population is of a very low type and the numbers are small, while in New Zealand they now rank on an equality with the British, and their numbers are increasing.

3. Concentration of large numbers in a few towns.—A most striking feature in Australia and New Zealand is the remarkable size of a few towns, in comparison with the population of the whole country. In each country the primary production is of the same type. Large areas are needed for flocks of sheep and herds of cattle, but a small number of people can do all that is necessary in those areas. The material obtained, however, is of large bulk, and the great mass of it is prepared for the export trade. A large number of people are therefore indirectly connected with the pastoral industry in each country, and the amount of material handled at the ports is immense.

Of the employed people about 25 per cent are engaged directly in agricultural and pastoral work, nearly 15 per cent. in the manufacture of material obtained as the result of the work of those people, about 15 per cent. in commerce and finance, and 8 per cent. in transport. This gives a total of 63 per cent of the employed people of the country, who may be said to be directly employed as the result of the primary work of its people.

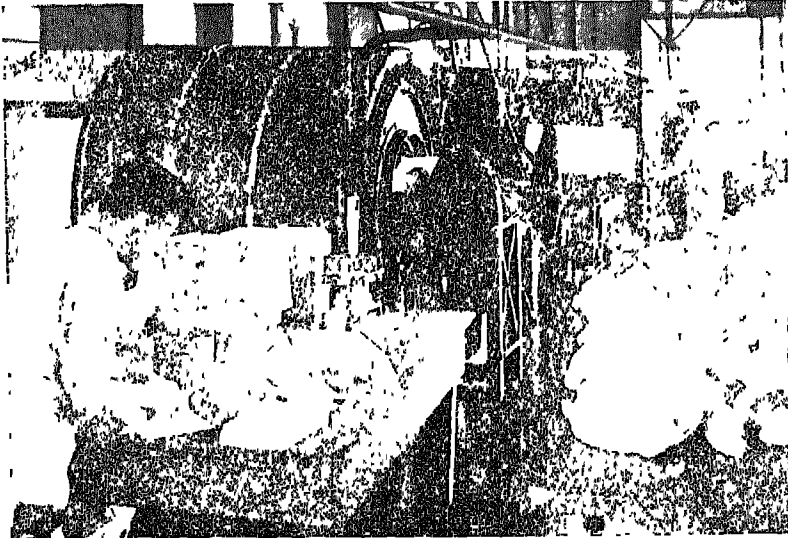
4. Nationality.—The remarkable fact that the population of the country is almost entirely of British descent contrasts with the mixed populations in Canada, British Africa and India. In New Zealand British people experience a climate approximating to that of their homeland.

5. Native flax.—Large areas in various parts of New Zealand are covered with *Phormium tenax*, or New Zealand flax, the fibre of which is used in making binder twine and rope The flax grows wild in swampy districts and was used by the Maoris for the making of clothing, fishing lines and mats The largest cultivated areas are in the Auckland and Wellington districts. There are about ninety flax mills in the country. The leaves of the plant grow from about five to eight feet high

6. Memory work.—(*a*) New Zealand is 1,200 miles away from Australia (*b*) The first white settlers there were English, Scots and Irish (*c*) There are plenty of open spaces in the towns of New Zealand (*d*) Butter, cheese, honey, fruit, meat and wool are exported from New Zealand. (*e*) The native people are called Maoris.

7. Exercises.—(*a*) Captain Cook first visited New Zealand in the year 1769 How long ago was that? (*b*) Why was New Zealand so called? (*c*) What might you do on holiday in New Zealand? (*d*) Name some New Zealand products which may be seen in English shops. (*e*) In what way are the Maoris different from what they were when Captain Cook first saw them? (*f*) How do the Maoris make their own clothes?

[Reproduced by courtesy of the High Commissioner for New Zealand

IN A BUTTER FACTORY

XII. NEW ZEALAND AND PAPUA

PICTURE REFERENCE

THE Class Picture illustrated on the next page (No. 87 in the portfolio) introduces the children to three types of New Zealanders and to a Man of New Guinea. The Maori chief is wearing a characteristic flax cloak, he holds a sharp-edged club of greenstone, and is standing beside an elaborately carved totem pole In the second picture we see timber-getters of New Zealand cutting down one of the giant kauri pines of the forest The illustration of Sheep Dipping will be familiar to some country children, but will have to be explained to the town dwellers The huge fish traps as used by some of the peoples in the Southern Seas are about ten feet long and six feet in diameter. They are made of split bamboo bound together with rattan vines At each end is an opening which converges to a hole in the centre, through which the fish can pass but cannot return The large trees behind the man are the well-known sago palms.

INTRODUCTION

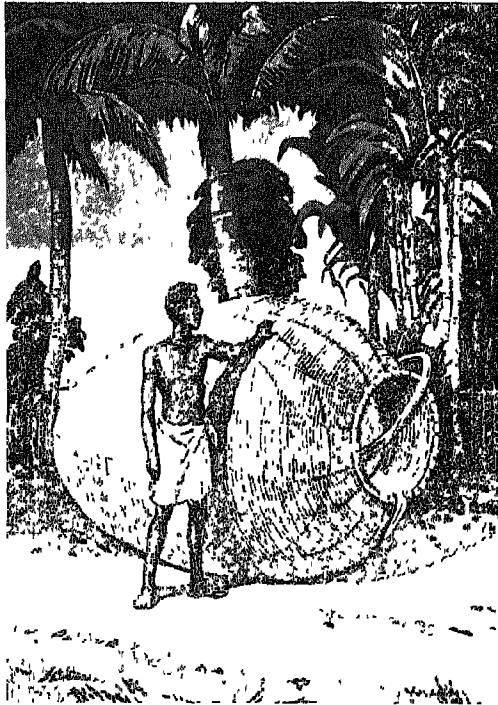
The Dominion of New Zealand mainly consists of North Island and South Island (separated by Cook Strait), with Stewart Island.

The country is situated in the south temperate zone between 33° and 47° south latitude The north is nearer to the equator than the south, and is consequently the warmer part of the country. East Cape is nearly 180° east longitude, that is halfway round the world from Greenwich.

South Island A backbone of mountains extends from the south-west in South Island to the north-east in North Island The lofty snow-capped Southern Alps slope steeply to the west, and in the south-west drop almost sheer to form the walls of fiords Great glaciers lying on the mountains feed many rivers The highest peak, Mt Cook, is more than two miles high In the east are many streams which, during the course of ages, have distributed loads of soil to form the important lowlands of the Canterbury Plains, and the plains of Otago farther south.

North Island is mainly hilly or mountainous, and much cut up by running water The long Auckland Peninsula, in the north, is lowland, but hilly The Rotorua district is a world-famous area of active, extinct and dormant volcanoes, with geysers and hot springs Mount Egmont in the west is a magnificent extinct cone; Ruapehu is the highest volcanic mountain, Lake Taupo is the largest lake Thousands of tourists and invalids are annually attracted to Geyserland, which is somewhat similar to Yellowstone Park, U S A

Climate.—In January (summer) isotherm 60° passes through the middle of South Island. Isotherm 50° passes through the middle of North Island in July (winter). Thus there is a *range* of only 10° between summer and winter conditions, so that New Zealand is a typical example of a country having an insular temperate climate

The prevailing *Westerlies* bring much rain to the mountainous Westland of South Island, on the east the Canterbury Plains and Otago are the driest in New Zealand. Throughout the North Island there is a plentiful rainfall, with more on the west

NEW ZEALAND PEOPLE

OLD-TIME MAORI CHIEF
NEW GUINEA MAN WITH FISH TRAP

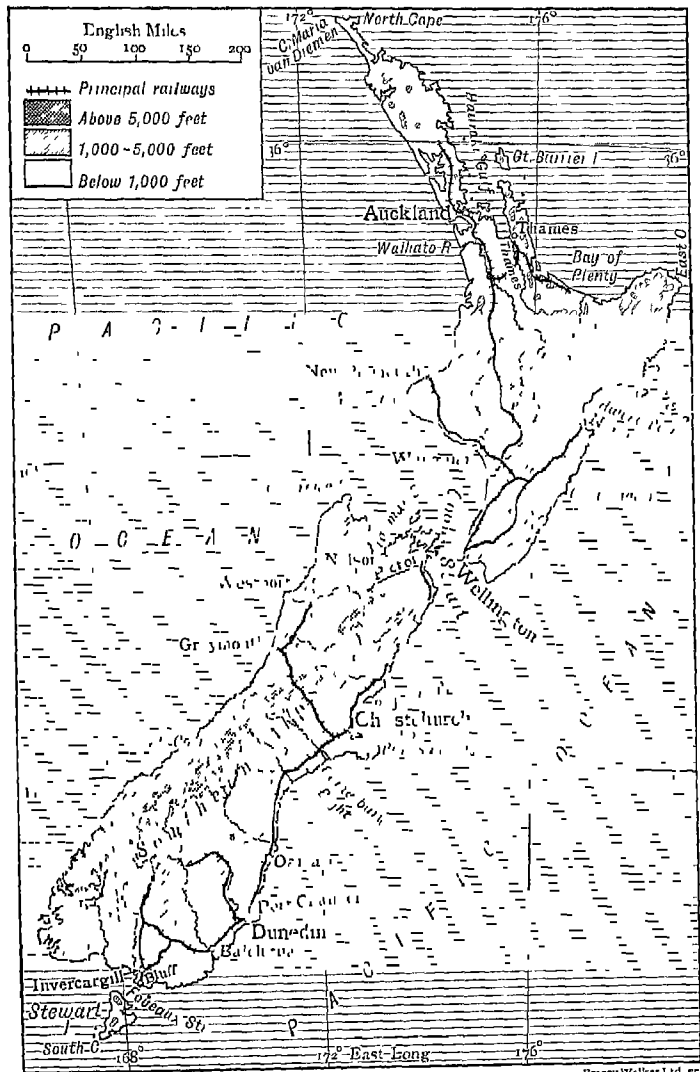
FELLING A KAURI PINE
SHEEP DIPPING

(Class Picture No 87 in the portfolio)

than on the east. Owing to the heavy rainfall the west of South Island is heavily forested, mainly by pines. The timber of the white pine is largely used for making butter boxes. Gigantic tree ferns grow in Westland and other parts of New Zealand. In the Canterbury Plains and other parts European grasses have been largely sown for cattle and sheep, for the native variety of grass is wiry and grows in tussocks. In North Island the kauri pine is prized for house and ship building. Kauri gum from ancient forests is dug up and exported. In the marshy districts of North Island grows phormium, or New Zealand flax, which is used like hemp in the manufacture of rope.

The eucalyptus tree, and the kangaroo and other marsupials of Australia are not found in New Zealand. One of the most curious native birds is the kiwi which cannot fly. As in Australia, the horse, sheep, cow, dog, pig, etc., have been introduced by white men.

Industries.—Sheep rearing, dairying, wheat and fruit growing, and mining are the chief industries. Sheep are mostly reared in the eastern districts of Canterbury and Otago in South Island; and in Wellington and Hawke's Bay in North Island. Four-fifths of the cattle are reared in the coastal districts of North Island, and in the south-west round Mount Egmont. Hamilton is the headquarters of the New Zealand Co-operative Dairy Company, one of the largest organisations of its kind in the world. Wheat and oats are grown chiefly in Canterbury and Otago, but wheat has to be imported; temperate fruits grow well—apples, plums, peaches, grapes, etc. The chief coalfields are near Greymouth and Westport; gold is found in both islands.

The principal exports of New Zealand are

GENERAL MAP OF NEW ZEALAND

wool, frozen meat, butter, cheese, tallow, skins and hides, gold, kauri gum, phormium, timber. The chief imports are apparel, metal goods and machinery, sugar, tea, tobacco, paper, motor cars and oil.

Cities.—Auckland is the chief port and largest city of the Dominion. Wellington City is the capital and is a port of call. Christchurch City, the largest in South Island, is 8 miles from its port of Lyttelton. Dunedin City is the outlet for the Otago produce, and is the chief city of the south All the chief cities are joined by rail in their respective islands. Notice the railways from the coalfields of Westport and Greymouth across the Southern Alps to Christchurch, and the line from Wellington to Auckland.

Fiji.—The Fiji Islands comprise a group of about two hundred and fifty islands, of which about eighty are inhabited The largest is Viti Levu, with an area about equal to that of the combined areas of Cornwall and Devonshire; next is Vanua Levu, about half the area of the former There are many European missionaries at work among the Fijians; there are numbers of schools, including two government grammar schools at Suva. The total population of the islands is about 255,000, of whom there are about 5,000 Europeans, 116,000 Fijians, and 117,000 Indians. The islands are of volcanic origin, but there are no signs of recent activity. The larger islands are mountainous and densely wooded, the soil is fertile, the climate healthy, and the rainfall plentiful Many plantations are cultivated by European and Indian settlers; the principal cultures are bananas, coconuts, maize, sugar cane, tobacco, tea, rice, cotton and beans Horses, mules, cattle, sheep, goats and pigs are reared in considerable numbers. Suva, the capital, is on the south coast of Viti Levu, it has an important entrepôt trade

The Fijians are a tall and well-built race with features which, though strongly marked, are not unpleasant; they have deep-set eyes and the men have thick, bushy beards The chiefs, who are fairer-skinned, are not so Negroid in type as the people. The Fijians are skilful cultivators and show skill in irrigating their fields with built watercourses and bamboo pipes. They are also good boat builders, and show capability and taste in the making of their mats, baskets, nets, cordage and pottery, the latter, like many other articles, being made by women. The Fijian weapons are spears, slings, throwing clubs, bows and arrows. The houses are ingeniously and well built with a timber framework, lattice and thatch, and are well furnished with native furniture.

The Territory of Papua, under the government of the Australian Commonwealth, is the south-eastern part of New Guinea, with several groups of small islands Missionary bodies are at work among the people, who until recent times were very uncivilised Many hundreds are now employed by planters in the cultivation of coconuts, rubber and sisal hemp. Mining is one of the most important industries, gold and copper are exported from Port Moresby The Papuans are people of Negroid stock, and are a tall, long-headed race, with receding foreheads and prominent brow-ridges They have brownish-black skins and frizzy hair, which is often dressed mopwise. The word *Papuan* is derived from a Malay word meaning *mop-headed* In general the people are peaceful fishermen and farmers

CHILDREN'S STORY

(The following talk on New Zealand touches only on certain important or interesting topics Little reference is made to the important pastoral occupations, as similar occupations have been dealt with in the section on Australia, but the teacher will naturally select the subjects for talks to suit the needs of the class. An account of the Sunny Islands of the Pacific was given in the "Children's Story" in Volume I, page 484. A short talk on the Papuans is added at the end of this section)

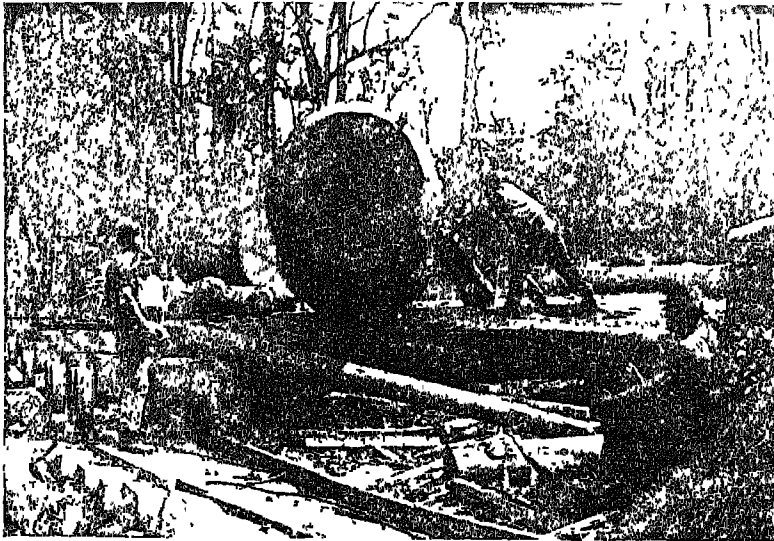
(Reproduced by courtesy of the High Commissioner for New Zealand

AUCKLAND CITY, NORTH ISLAND, NEW ZEALAND

We will now take an imaginary trip to New Zealand to see some of the most notable places and to watch the people at their work. Take the globe and put your finger on the British Isles. Now remove your finger, turn the globe slowly round until you find the islands of New Zealand You will see that you have to turn the globe almost exactly halfway round to find these islands, so you will understand that when at midnight you are fast asleep in bed, the New Zealand boys and girls far away are having their midday meal Look at the globe again The British Isles are north of the equator, and the islands of New Zealand are opposite to them on the south side of the equator. This teaches us that when we are eating our Christmas dinner in midwinter, the New Zealanders are eating their Christmas dinner in midsummer. We in Britain will probably have hot roast beef, or turkey, or fowl and hot plum pudding and mince pies. But that sort of food is not very good to eat in hot weather, so the New Zealanders will prefer to have a cold Christmas dinner with plenty of strawberries and cream, ices and ripe fruit, for when Britain has snow, New Zealand has warm sunshine. As the earth goes on spinning round, matters will change When it is midsummer in Britain it will be midwinter in New Zealand, but still the winters in most parts of New Zealand will not be very cold, for it is a warmer country than Britain throughout the year

On arriving by steamer at New Zealand we enter a grand harbour at the mouth of an arm of Hauraki Gulf Near by are great concrete wharves with many huge cranes, steamers, sailing yachts and boats of many kinds lie in the harbour We land and walk up Queen Street and look round at the fine public buildings and the splendid shops We can take a peep at the university, the art gallery and the free library. When we want a rest we can go to one of the beautiful parks, and if we have time we shall certainly visit the Zoo, which is a very famous place If we are staying at Auckland for a few days

we shall go by steam ferry to the suburbs and see the fine houses surrounded by splendid gardens and orchards. We shall be sure to see some of the giant trees called kauri pine. They are among the finest in the world Near where Auckland now stands, the country was at one time forest land covered with these grand trees, but now most of them have been cut down. They are straight trees having round trunks like great pillars, and round bushy heads The leaves, which are thick and leathery, remain on the trees for several years, but the thick, resinous bark falls off in large flakes. From the forks of the branches the kauri pine gives out a thick juice called resin which hardens in the air Under the ground where the great forests once stood there are left solid lumps of this resin varying in size from a hen's egg to a man's head. This resin is very valuable It is dug out of the ground and sent abroad in ships to make fine varnish, which, as you know, is used by painters on the woodwork and ironwork of houses and other buildings A ton of this wonderful kauri gum is worth about £200, so you will understand why men dig it up from the sites of ancient forests.

There is a good deal of rain in parts of New Zealand and there are, consequently, many forest-clad hills where grow, not only the kauri pine, but other trees also The New Zealanders call their forests the "bush" The bush is very dense, for the trees are surrounded by a thick undergrowth of tough creepers, and giant evergreen climbers twist and twirl about the trunks and branches. Among the most beautiful plants in the world are the New Zealand tree ferns One of the finest tree ferns is called the Prince of Wales's Feathers It looks like ostrich feathers curled and dyed green Some of its fronds are four feet long. The bush is always green, and in summer is gorgeous with flowers.

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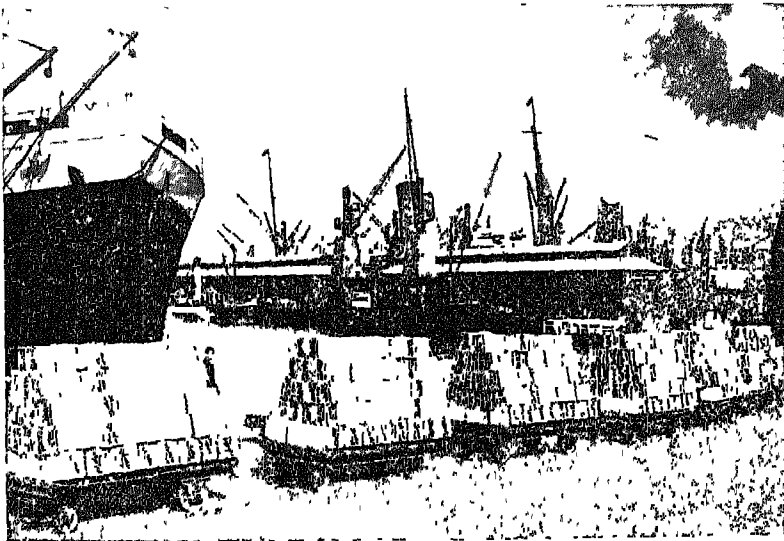
TRANSPORTING KAURI

Imagine an English fuchsia, as large as an ordinary tree, in full bloom and you will have some idea of what can be seen in the New Zealand bush

There are no dangerous wild animals in the bush, but there are hundreds of deer and wild pigs Captain Cook first brought

pigs to the land The deer do much damage by eating young tender trees The pigs, too, can be very troublesome Opossums that live in trees are hunted for their valuable fur, but the forest birds are protected, for many of them eat insects, and others suck nectar from forest flowers, and so carry pollen from tree to tree, thus, like bees and butterflies, helping the trees to grow seeds

An eight hours' journey by train from Auckland will take us to Rotorua, one of the most wonderful places in the world This town lies in the midst of a remarkable volcanic district, generally known as the Hot Springs district Here may be seen spouting geysers throwing aloft jets of steaming water, steam holes so hot that food can be cooked in them, and bubbling mud springs which are called "porridge pots." A wonderful sight is the "Champagne Cauldron" When we first see the cauldron, it is a lovely calm blue pool We stand and watch, and, if we are fortunate, suddenly we see the water begin to foam, it seems to be covered with cream, and then with a great heave it "boils over" and the frothy water pours over its yellow rock basin Hundreds of visitors go to Rotorua every year, but as there are 660 square miles of this wonderful Hot Springs district there will be plenty of room for us We shall certainly visit the quaint Maori village of Ohinemutu and look at the houses made of wood and reed with their strangely carved woodwork We shall see some of the people dressed in their flax clothes, see children bathing in warm pools, women washing clothes without having to boil their water, and some of them cooking their meals as you see them in the picture. We could spend many days in this wonderful part of the country, but we must take the train again and go to Wellington, the capital city of New Zealand

Here on the shore of Port Nicholson is a grand harbour walled in by steep hills On the flat shore lands are the factories, shops and principal buildings. Scattered over the surrounding hills and terraces are the dwelling houses. There are some fine public buildings to be seen, such as the Houses of Parliament, built in brick and New Zealand marble, the Town Hall and the Victoria University College There are

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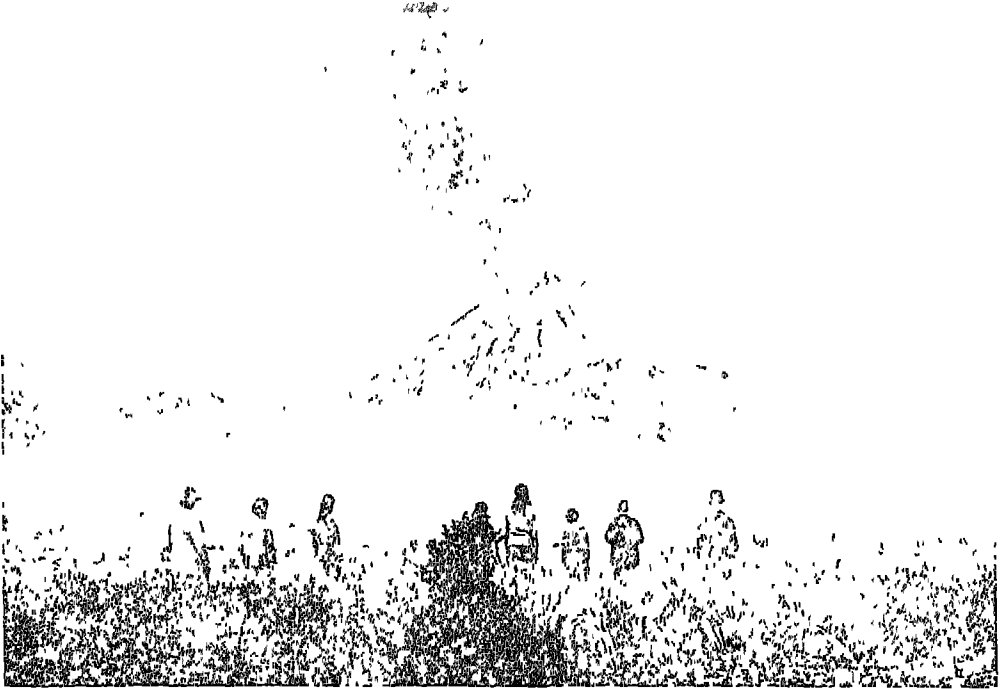
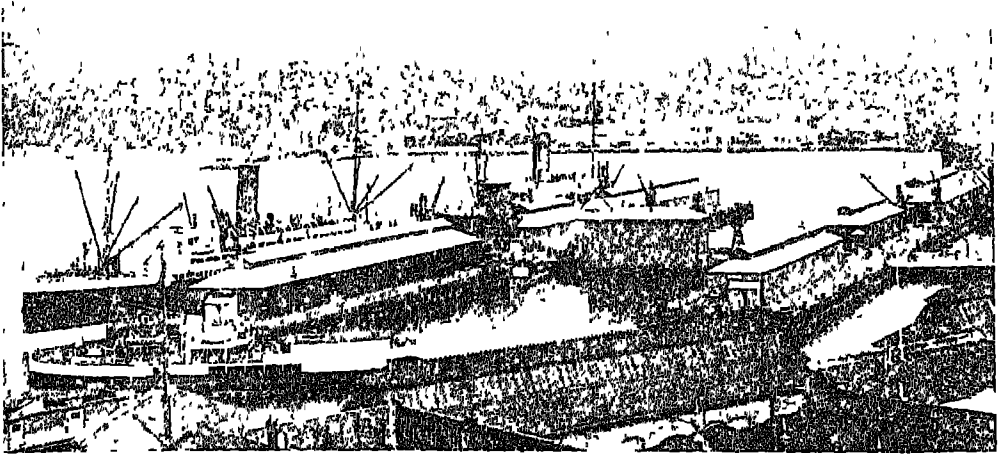
APPLES FOR EXPORT AT WELLINGTON

[*Reproduced by courtesy of the C P R*

MOUNT NGAURUHOE (TONGARIRO NATIONAL PARK) IN ERUPTION

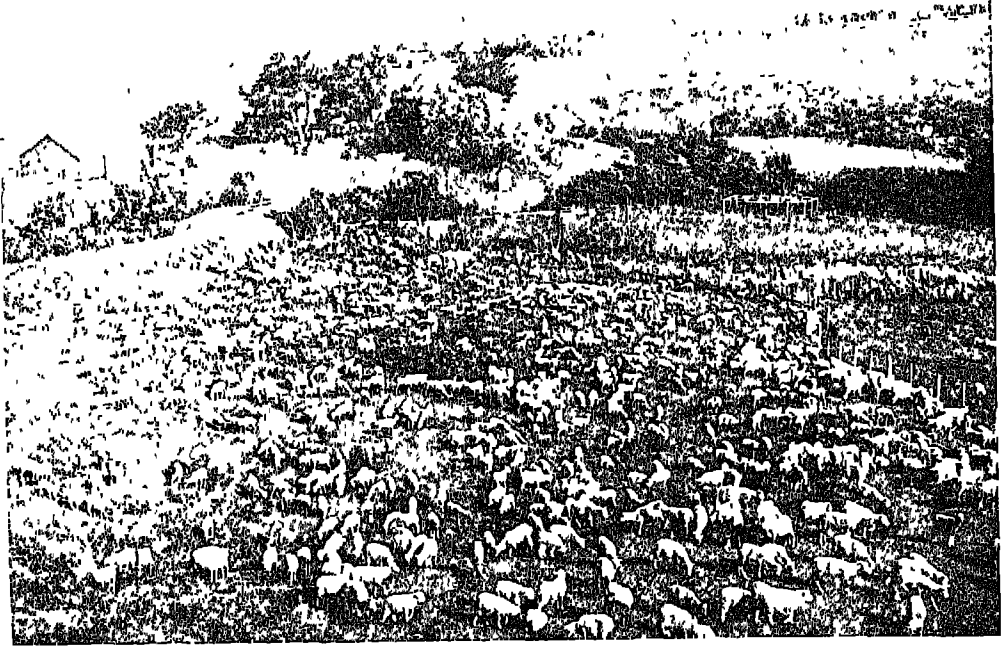
delightful public parks and recreation grounds for Rugby football, tennis, cricket and other games Electric trams and motorbuses run everywhere Electricity is cheap in Wellington, for it is produced eighty miles away by the power of rushing water At Wellington in 1840 the first colonists made their homes. How long ago was that? Is it not wonderful that a fine city like this should have grown up in such a short time? In Auckland there are nearly as many people as live in Portsmouth in England, and Wellington is a little larger than Dundee in Scotland

How do the New Zealanders earn their living? You already know the answer to this question if you will remember about the New Zealand mutton, lamb, beef, butter, cheese and honey Green pasture lands are the chief riches of the country There is no need to say anything about the sheep and cattle, for sheep and cattle rearing are carried on much the same as in Australia Wheat is grown for food, dairy cattle for milk are reared in enormous numbers, sheep are kept for their wool and their meat, and fruit grows splendidly in the delightful climate. New Zealand is often called the "Britain of the South" There are several reasons for this. the settlers came mostly from Britain, the grasslands, wheatfields and orchards are similar to those seen in Britain except that the flocks and herds are more numerous, and the climate is like that of the warmest parts of Britain

The New Zealanders are skilful and busy workers The cows are milked by machinery; the wonderful butter and cheese are made in large factories under watchful eyes; the fruit is most carefully cultivated, picked and

[Reproduced by courtesy of the High Commissioner for New Zealand

WELLINGTON HARBOUR

packed for sending abroad, the mutton is frozen and sent away in large vessels to add to the food supplies of people in Britain, who do not keep nearly enough sheep to supply them with all the mutton that is needed In the British Isles, you will remember, there are forty-seven million people to feed every day, so we are glad to have the many good things that the New Zealanders are able to send us.

Now we must go over to South Island At Wellington we will take a steamer, cross Cook Strait and sail by the coast for about ten hours until we arrive at Lyttelton. This may be called the "Mutton Port" of New Zealand, for on the Canterbury Plains inland from Lyttelton are reared thousands of sheep. We take train to Christchurch, eight miles from the port. This city is the capital of the province of Canterbury, and like the Canterbury of England it has a fine cathedral, the best in New Zealand, and it is the seat of a bishop. We shall be sure to notice the wide straight streets, the brick and stone houses, the avenues of trees, the parks and the gardens. We can go by tram to New Brighton, which, as you might expect, is a seaside suburb called after the large seaside town of Brighton in England It will be worth visiting the museum to see the remains of a most curious bird called the moa There are no moas living now, but when the Maoris came to live in New Zealand these strange birds were to be seen. Some of them were huge creatures, more than twice the height of a man; they had very strong legs which ended in four toes (most birds you know have but three toes); the bill was short and stout, and, most curious of all, they had no wings Numerous bones of these birds have been found in caves and swamps, and clever men have built up the remains of one which can now be seen in the museum at Christchurch As in other cities of New Zealand, there are fine public buildings to be seen, and what would please you best perhaps would be the wide open spaces where children play their games. New Zealand children can hardly help being happy seeing that there

[*Reproduced by courtesy of the High Commissioner for New Zealand*

Sheep on Te Paki Station in the Far North of New Zealand

are plenty of open spaces for games and so much sunshine

We cannot visit all the fine cities of the country, but we must take a railway journey from Christchurch across the Canterbury Plains if only to go through a wonderful tunnel It is the Otira tunnel, over five miles long (the longest in the British Empire), which has been cut through the mountains called the Southern Alps to take the railway from Christchurch to Greymouth and Westport It was a great work to tunnel through these mountains and men were busy at it for fifteen years, but it was worth doing, for Greymouth and Westport are the chief ports on the west side of South Island, and in the neighbouring district are found gold and coal.

We return to Christchurch and go by train again southwards along a narrow coastal plain till we reach the important city of Dunedin. It lies about fifteen miles from the open sea at the head of a narrow outlet called Otago Harbour. Steep forest-clad hills rise close to the city, and much land on which the buildings now stand had to be reclaimed from the sea. The trees of the forest near by may not be cut down, for they are preserved in the public ground named the Town Belt, and they give the city a grand appearance. As in most new cities, the streets are wide and straight As you already know, the New Zealanders take great care that all their people are well educated, hence there is a university at Dunedin. The ships in the harbour carry

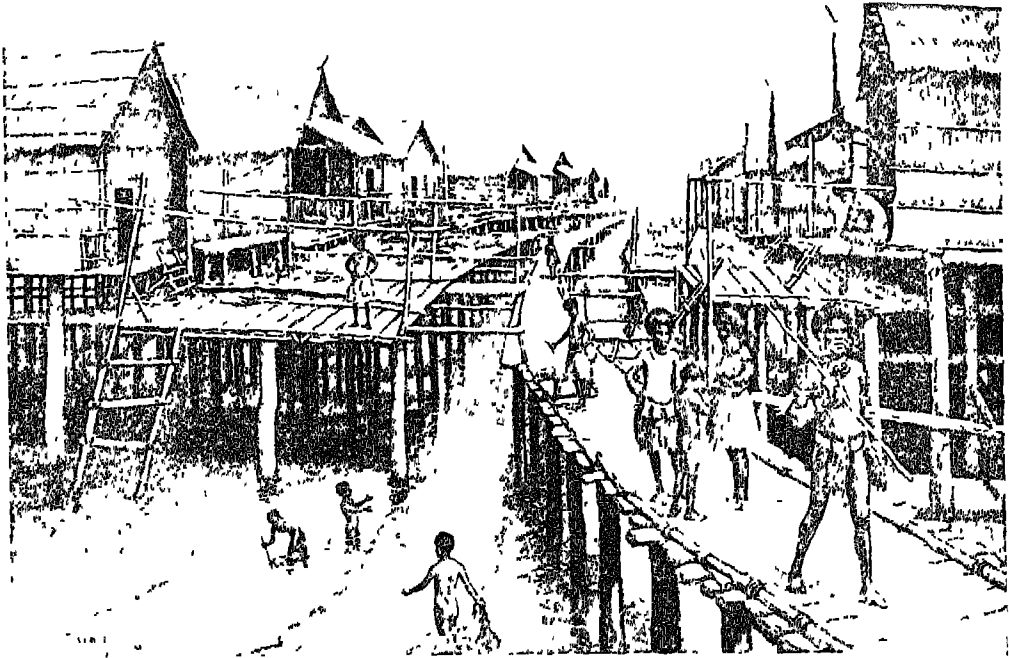
away gold, wool, butter, cheese and frozen meat, and return with coal and clothes and other manufactured goods

If you look at the map of New Zealand you may notice that there are many parts without railways In some of these parts the land is mountainous and practically nobody lives there The horse is used a good deal for travelling in New Zealand, and of course the motor car is to be seen almost everywhere On the scattered sheep stations one need not be lonely, for a telephone will certainly be there, and one can ring up a neighbour and have a chat at any time of the day.

The Papuans.—To the north of Australia lies New Guinea, the second largest island in the world. The western half belongs to the Dutch, and the eastern half is a part of the British Empire. The climate in New Guinea is very hot and damp, for the island lies close to the equator Few Englishmen live in British New Guinea, or the Territory of Papua as it is officially called, and the native people are called Papuans They are a tall, brownish-black people with frizzy hair which is often dressed mopwise The name Papuan is derived from a Malay word meaning *mop-headed* In the warm moist climate of New Guinea certain root crops, grasses, fruits and trees grow in abundance, hence the Papuans have little work to do to obtain plentiful supplies of food. They are fond of yams, sweet potatoes, sago, maize and rice; in the forest they hunt with dogs for wild pigs, wallabies and other small animals. (The wallaby is a small kangaroo) Fish are plentiful, and these the Papuans spear at night by torchlight, or catch with lines or nets. In the swamp districts of the coast some people make huge fish traps which look like baskets These traps, which are made of split bamboo, have an opening at each end through which the fish enter, but the traps are so made that the fish cannot swim out again. (See Class Picture, No 87) On the seashore are turtles and huge shellfish. Some of the great mussels which live in these warm seas weigh (without the shells) as much as thirty pounds. The women cook the food in various ways, sometimes in cooking pots which are made at different parts of the coast, and sometimes by putting the fish or meat on the hot embers of a fire, or in holes over heated stones.

A Papuan man is a fine looking fellow for he wears necklaces, armlets and earrings of shells, and feathers from the cockatoo, cassowary, or bird of paradise. Through the lower part of his nose he pushes a pencil of bone, or a pretty feather or flower, and he may sometimes be seen wearing a circlet of dogs' teeth round his head. The Papuan comb is a long piece of bamboo split at one end into prongs like a fork The prongs are stuck into the frizzled mop, while the other end projects sometimes two feet or more, and into it are stuck the bright feathers of birds The Papuans are fond of smoking, for tobacco grows wild in the country The Papuans are clever in building canoes and other boats. Many of these are dugouts made by hollowing out a large log. On one side of some of the dugouts the canoe builders fix a stout piece of wood which rests on the water and so prevents the dugout from turning over. Such a dugout is called an outrigger. Some of the boats are built of planks tightly laced together with fibres of plants. Large vessels are made by fastening together several dugouts each about fifty feet long These have two masts, a huge mat sail, and a deck on which are built several high crates or boxes The men sail these curious craft with the crates full of sago and exchange it at other parts of the coasts for cooking pots and other pottery.

The Papuans are fond of dancing, but they do not often sing They prefer to dance to the sound of the drum, which is made with one end open and is tapped by the fingers

Some of the coastal houses are built on piles driven into the water, while far inland there are huge houses, five hundred feet long. These have rounded roofs, thatched

HOMES OF COASTAL PEOPLE—PAPUA

with palm branches and leaves, and rooms for many families Down the middle of an ordinary house there is a passage, and sometimes a house will have two storeys, the lower one being used for stores.

The people used to be fond of fighting, but nowadays those who have bows and arrows and two-pronged spears use them chiefly for fishing. They keep their villages neat and clean and nicely sanded, they plant pretty trees and shrubs and build stone seats round a square where they can sit and talk over the news.

In the Territory of Papua there are about 3,000 Europeans, and, as far as can be known, about 337,000 Papuans. Missionaries are busy teaching the people, and they have schools in which some of the children are taught to read and write.

The territory is looked after by the Australian government, and there are Papuan magistrates and village constables. The Europeans are mostly interested in the plantations of coconut, rubber and sisal and in the gold and copper mines. The chief port is Port Moresby, where the Papuans are used to helping with the huge steamships, motor cars and aeroplanes of the white traders

TEACHING HINTS

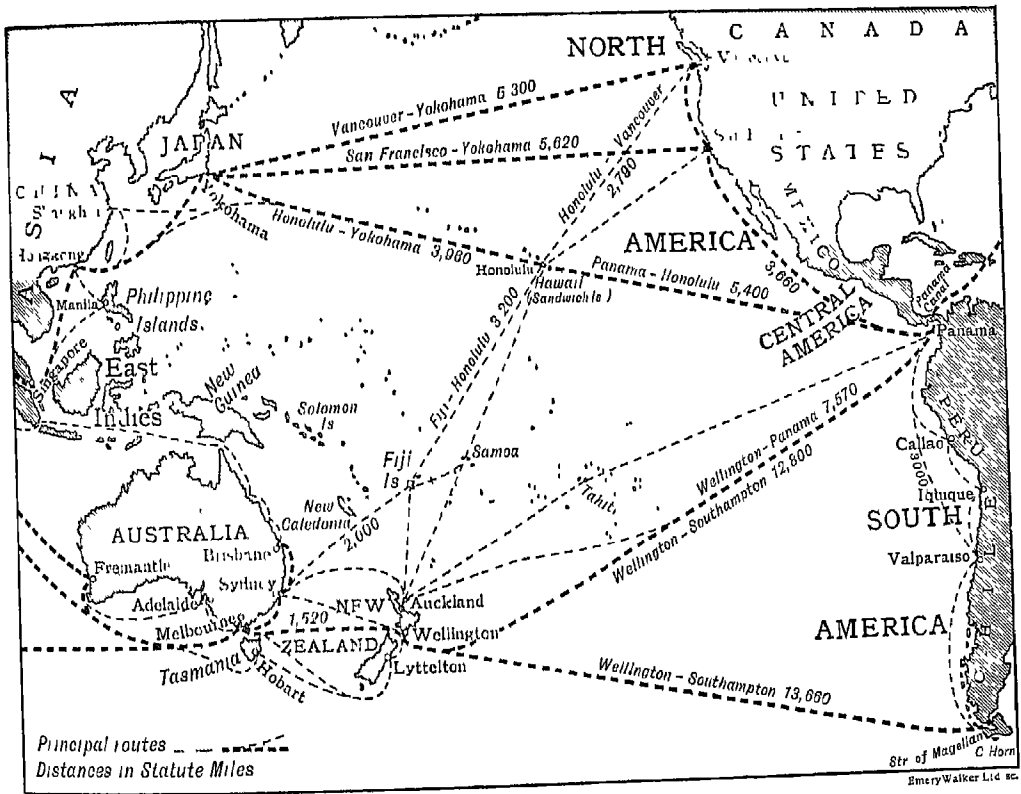
1. Map.—For revision purposes it will be useful to draw on the blackboard a sketch map of the world showing the zones of climate. This will help the class to understand why the conditions of life in New Zealand are similar to those in Britain It will help them, too, to understand what is meant by a "tropical climate," such as that of the northern parts of Australia and the island of New Guinea Comparison, too, can be made with life in Canada.

2. Frozen meat.—The first shipment in 1881 of New Zealand meat was less than 5,000 carcases In the year 1930, 9,500,000 carcases were sent to Britain. This is a remarkable demonstration of progress in a period of fifty years.

3. Apples.—As a result of the application of scientific methods to the carriage of fruit over a distance of 13,000 miles from New Zealand to Britain, about one million cases of apples and one hundred thousand cases of pears are exported annually

4. Honey.—The native grasses of New Zealand are of a wiry nature and English grass seed has been sown for the sheeplands. These grasses, with the white clover which grows luxuriantly, give Imperial Bee Honey the same flavour as the British variety.

5. Wool.—The New Zealand sheep flock is nearly twice that of England and Wales The annual weight of wool is some 226,000,000 lb. Sheepshearing is now done almost exclusively by machinery. In the old days of hand shearing the best tally was two hundred and seventy-three. The modern machine shearer can put up a tally of three hundred and seventy in eight and a half hours.

6. The thermal regions.—Refer to the rise of temperature with increase of depth in the earth's crust. The temperature in deep coal mines is higher than that at the earth's surface although removed from the influence of solar heat. Water coming to the surface from deep-seated regions is warm or hot according to the depth from which it issues. Geysers must be compared with volcanoes,

PACIFIC OCEAN—TRADE ROUTES

but they eject hot water instead of molten rock. Some openings in the crust eject hot gases (fumaroles); others throw up hot mud (mud volcanoes). Earthquake regions are also closely associated with volcanic areas. The town of Hastings was partly destroyed by an earthquake in 1931.

In the thermal area of New Zealand great geysers, boiling pools and springs send clouds of steam upwards, while boiling mud pools add to the weirdness of the scene. One of the most famous geysers is called "Pohutu" The active volcano of Ngauruhoe (7,515 feet) is a great attraction to the tourist Ruapehu (9,175 feet), near by, has a steaming lake in its crater, while Tongariro, a third member of the group, although extinct, has active steam vents on its lower slopes

7. Climate.—The latitude, size and distance of the country from any large land mass must be dealt with in the study of the climate.

The country is situated in a latitude which corresponds to the north of Africa and the south of France. The sea influence is seen in the small range of temperature experienced everywhere and the total absence of drought

Emphasise the influences of the *westerlies* In the southern hemisphere the west winds blow over a region where there is very little land. They are therefore very strong winds and contain an abundance of vapour. The high Southern Alps receive the full force of these winds

The Dominion is a land of abundant sunshine; the annual average is equal to that of Italy—exceeding 2,000 hours The great distance from any large land mass keeps the country from the disturbing influence of a continental area. There is not that liability to abrupt changes and unpleasant conditions that a large mass of land tends to produce

North Island is in a latitude where a Mediterranean climate of winter rain should be experienced There is a winter rain maximum, but on account of the sea influences, there is not a definite winter rain type of climate.

The Dominion is in the southern hemisphere, and the seasons are, of course, opposite to those of the northern hemisphere The New Zealand year divides approximately thus: *Spring*—September to November, *Summer*—December to February, *Autumn*—March to May, *Winter*—June to August.

8. The Antipodes.—New Zealand is almost the antipodes of Britain. (The word *antipodes* is derived from a Greek word meaning *with the feet opposite.*) Children are always interested if they are asked to place two tiny pieces of plasticine or clay on a globe to represent two flies, one resting on Britain and the other on New Zealand They will then readily understand the meaning of the word *antipodes*. The Antipodes Islands are a group of uninhabited rocky islets in the South Pacific, about 480 miles south-east of New Zealand.

KIWI

HANDWORK

FOR THE GEOGRAPHY LESSONS

CANADA. I.

The lessons in this year's course are concerned with the peoples and the industries of the Dominion of Canada and of Australasia The handwork lessons devoted to these parts of the Empire are equally divided between them; five deal with Canada and five with Australasia.

The first lesson, which tells the story of the growth of Canada, furnishes a picture of Red Indian life A simple and appropriate model is that of a Red Indian peace pipe, or calumet, which may be constructed in the following manner. A strip of white cartridge paper is rolled tightly round a knitting pin, as shown in Fig. 1 A. When sufficient paper has been rolled on to the pin to make a firm roll, the end is securely gummed down and held in place till the gum dries When the gum is thoroughly dry, the pin is removed and the strong paper roll forms the stem of the pipe. The pin is again inserted into the stem and a second strip of paper narrower than the first is rolled round one end of the stem to form a band of additional thickness, Fig. 1 B. This second roll is gummed in place, giving the completed pipe stem, Fig 1 C.

The next task is to make the bowl of the pipe, which is shown in Fig 1 D. It is modelled in clay, so that the children may colour it when it is dry. They should first take a small lump of clay and roll it between the palms of their hands to form a ball From the ball they must produce a stunted, carrotlike shape, rounded at one end and pointed at the other The pointed end must then be flattened by gently pressing it on to the modelling board The sharp end of a modelling tool is pushed in the centre of the flattened end, the tool is held obliquely and carefully rotated to scoop out the bowl of the pipe A simple pattern is marked round the outside of the bowl, and the completed stem is inserted at the base The model is put aside till it is thoroughly dry. It should then be painted in black, white and red, which are favourite Indian tints. A number of tiny paper feathers, coloured brightly in green, blue, red and yellow, are cut out and threaded on to a length of cotton To complete the model the thread is tied to the stem, Fig. 1 E

The next model is that of a Red Indian wigwam. A framework for the model is shown in Fig 2 A Four lengths of twig or cane are stuck upright into an irregular slab of clay, and are tied together at the top to form a pyramidal shape The walls of the wigwam may be made of thin paper, but it is better to use a piece of calico or other material which has been dipped in weak coffee to colour it pale brown. When it is dry, a pattern in black and vermilion may be painted upon it. The walls are cut out as shown in Fig. 2 B. Two concentric circles are drawn; the middle is cut away and also part of the outer ring, leaving a flap for joining. It is a good plan to allow the children to cut a paper pattern of the walls, so that they can experiment on the required size and shape before attempting to cut the material. The walls are joined round at the top by means of two paper fasteners A doorway is cut at the base, and the complete shape is slipped over the poles.

The third model is that of a snowshoe, which is cut from folded paper as shown in Fig. 3 A. The parts X and Y are cut away; the paper is opened out and the spaces are laced crosswise with thread. Folded paper is also used to make the head of a tomahawk, Figs 4 A and 4 B. The portion marked X must be equal in width to the diameter of the stick which is used for the handle. The head is gummed to the handle and decorated by tying on coloured feathers.

Fig 5 shows a Red Indian cut-out which gives scope for bright colour work.

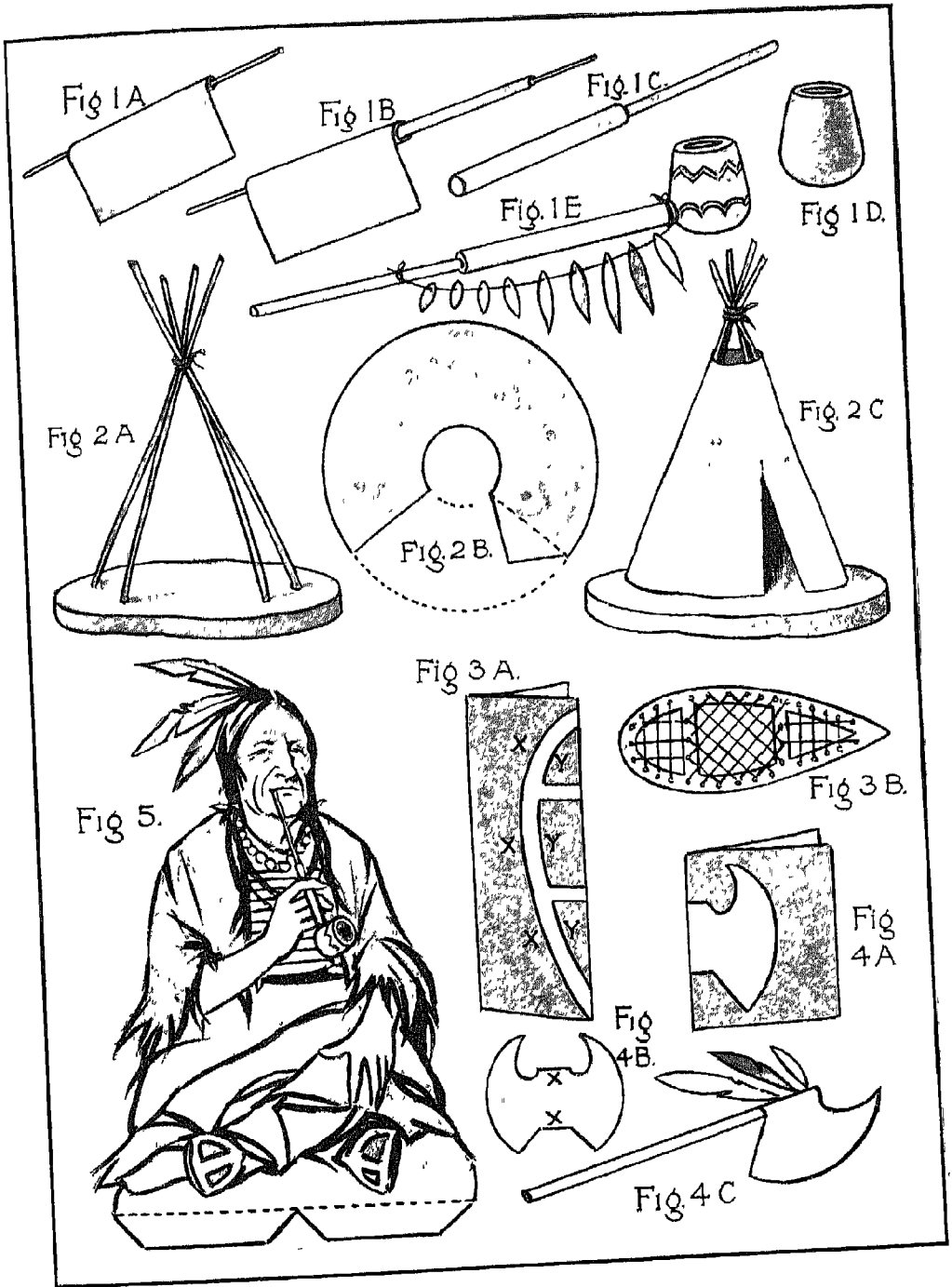



PLATE I

Fig 1 Indian Peace Pipe in Paper
Fig 2 Red Indian Wigwam in Paper or Calico
Fig 3 Snowshoe in Card
Fig 4 Tomahawk in Paper
Fig 5. Red Indian Cut-out

CANADA. II.

The chief subject of this lesson is the Canadian Pacific Railway, and the model chosen is a C P R engine. A mantle box, a cardboard box lid, some thin cardboard and some clay or plasticine are required. The children begin the model by cutting the basal sheet of card (Fig 1 A), which must be large enough to hold the mantle box lying upon it in the position shown, and also to give room for the cab behind it Four fittings for the wheels, their length being the width of the base of the engine, must then be cut out from thin card The mantle box is stuck firmly with seccotine or a similar adhesive, to the base of the engine, and the axle fittings for the wheel are stuck on to the underside at equal distances apart.

The children must then draw on the base of the engine a rectangle which is to equal the size of the cab, as shown by the dotted lines in the diagram Having decided on the size of the cab, it must be planned out on flat cardboard as shown in Fig 1 B. As it is a symmetrical shape, a paper pattern may be used for one side, and then reversed to draw out the other Note the flaps which must be left for construction and for fixing the cab to the base of the engine The cab is bent into position along the dotted lines shown in the diagram, then it is made up, and gummed to the rear of the engine against the end of the mantle box A funnel and a steam chamber (Figs. 1 C and 1 D) are modelled in appropriate sizes in plasticine, and fixed to the mantle box in their correct positions

The cowcatcher, common to American engines, is fitted to the pointed front of the basal card. It is made in two portions, one being the reverse of the other. The shape of the cowcatcher is shown in Fig. 1 E The length of the top edge must be the same as that of one of the edges of the pointed front of the engine, along which it is to fit The top of each piece of the cowcatcher will require a straight flap for joining it to the base of the engine, but only one will need the small triangular flaps which are used for joining the two front edges of the cowcatcher

The model is now finished except for the fitting of the wheels Kindergarten sticks are thrust through the axle fittings (Fig 1 F), and stout cardboard wheels are added to the axles. Two tiny clay lamps and a whistle are required to complete the model, which is then painted a bluish-grey and marked with the letters C.P R.

The winter sports of Canada suggest the model of a toboggan This is easy to make and may be given to the backward children of the class A rectangle of stout card is required, and to this two runners are added, Fig 2 B Each runner (Fig 2 A) is provided with a long fixing flap, rounded openings are made near the front of the flaps through which a piece of string may be tied.

The last model is that of a cowboy's hat in plasticine From a rounded cuplike shape (Fig 3 A) a slightly pointed crown (Fig 3 B) is produced. The wide brim is formed by flattening a ball and removing the middle to make the rest of it fit the crown, Fig. 3 C. The two are fixed together (Fig 3 D), and a narrow band of plasticine hides the join.

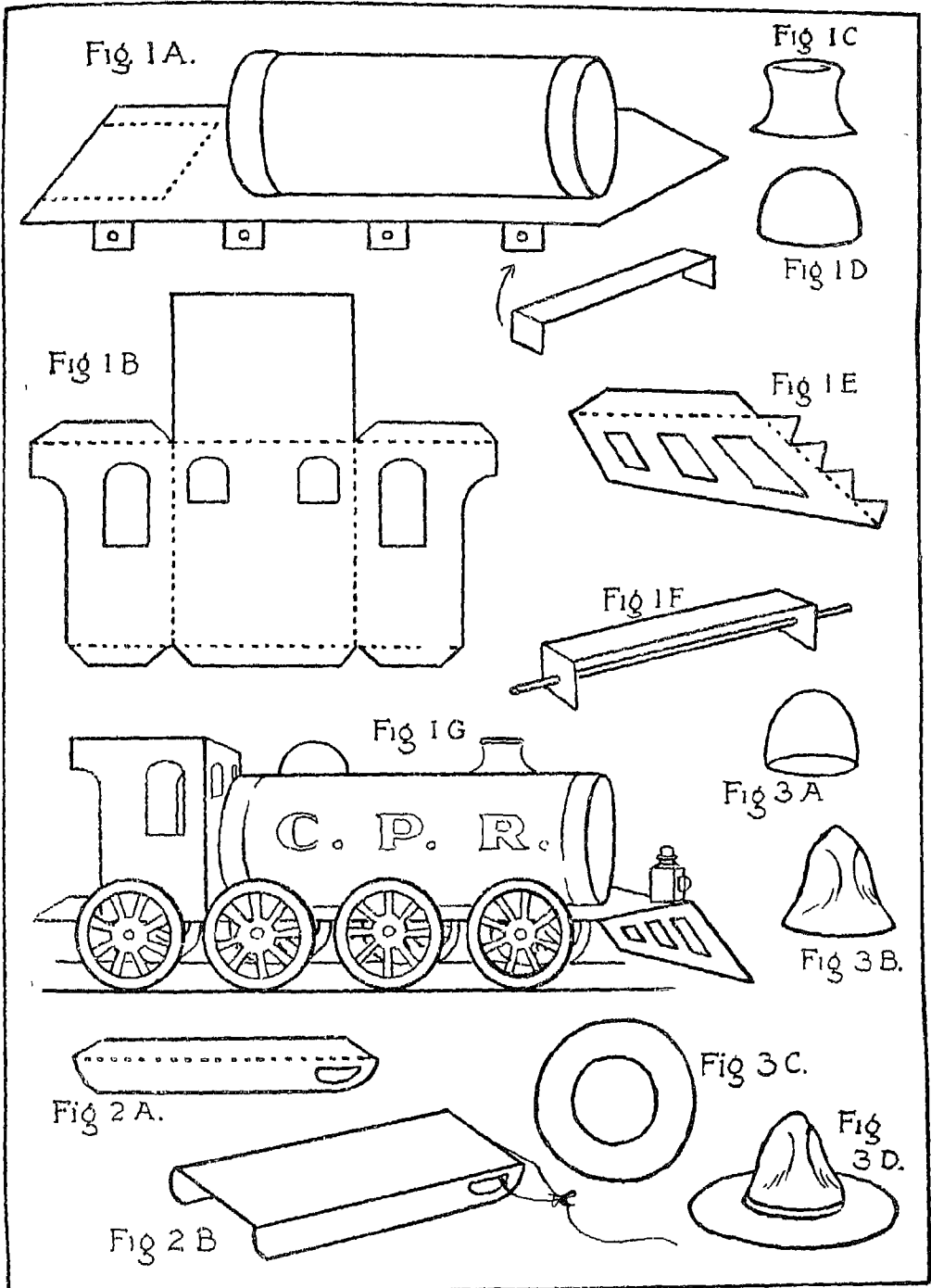



PLATE II

FIG 1 CARDBOARD MODEL OF A CANADIAN PACIFIC RAILWAY ENGINE
FIG 2 TOBOGGAN IN CARD
FIG 3 PLASTIC MODEL OF COWBOY'S HAT

CANADA. III.

The children will find an interesting aid to study in making a collection of models of houses from different parts of the British Empire. Simple models of a Bantu kraal, a South Seas tree house and an Arab tent have already been made, and these would form a nucleus for such a collection. (See Volume I.) The consideration of Canada provides valuable material for the comparative study of housing. The primitive dwelling of the Red Indian has been dealt with in a previous lesson, and we now proceed to the construction of the log cabin and the rancher's house.

The first model is that of a Canadian lumberman's log cabin. An ample quantity of clay will be required, and it will be found advantageous for the children to work in pairs. A flat layer of clay is spread on the modelling board and nine kindergarten sticks are stuck vertically into it, as shown in Fig 1 A. The plan of the walls of the cabin should be first marked on the surface of the damp clay. The length of the sticks should be greater than the final height of the walls, so that the sticks will project when the walls are completed

The children must then prepare rolls of clay to represent logs These are slipped over the sticks and cut to the required lengths in the manner illustrated. As seen in Fig 1 B, the entrance to the cabin is formed by using shorter lengths to begin with on the front, the pointed ends of the gable are produced by decreasing the lengths of the upper rolls in building.

When all the rolls are in position, the projecting ends of the kindergarten sticks are cut off, and long rolls are added to form the roof To complete the model, a chimney pot is placed in position, and a cardboard door is fixed in the entrance, Fig 1 C. When thoroughly dry, the cabin should be given a coat of dark brown water colour, and brown and green pastel dust should be sprinkled on the base.

The next model is that of a rancher's house, which resembles those shown in the illustration of *A Ranch Scene in Alberta*, Vol I, page 411. It will be noticed that the shape of the end of the gable is peculiar in having a double angle. Fig. 2 A shows how the children may make a paper pattern of this gable by cutting off the point of the usual shape of a gable This pattern is used to develop the whole shape, which is shown in Fig. 2 B The house is bent up as indicated by the dotted lines, and the end flap is stuck to the opposite side. The roof is an oblong sheet of thin card bent at the middle, and again on each side of the middle crease. It must be large enough to project about ½ in at the ends and the sides, Fig 2 C. The house is now stuck down to a cardboard base, and a verandah is fixed. The formation of this is shown in Figs. 2 D and 2 E, the fixing flap being bent down to stick to the side of the house. Short lengths of stick or paper will form the poles of the verandah. Two clay chimney pots are fixed to the roof and the model is painted in yellows and browns.

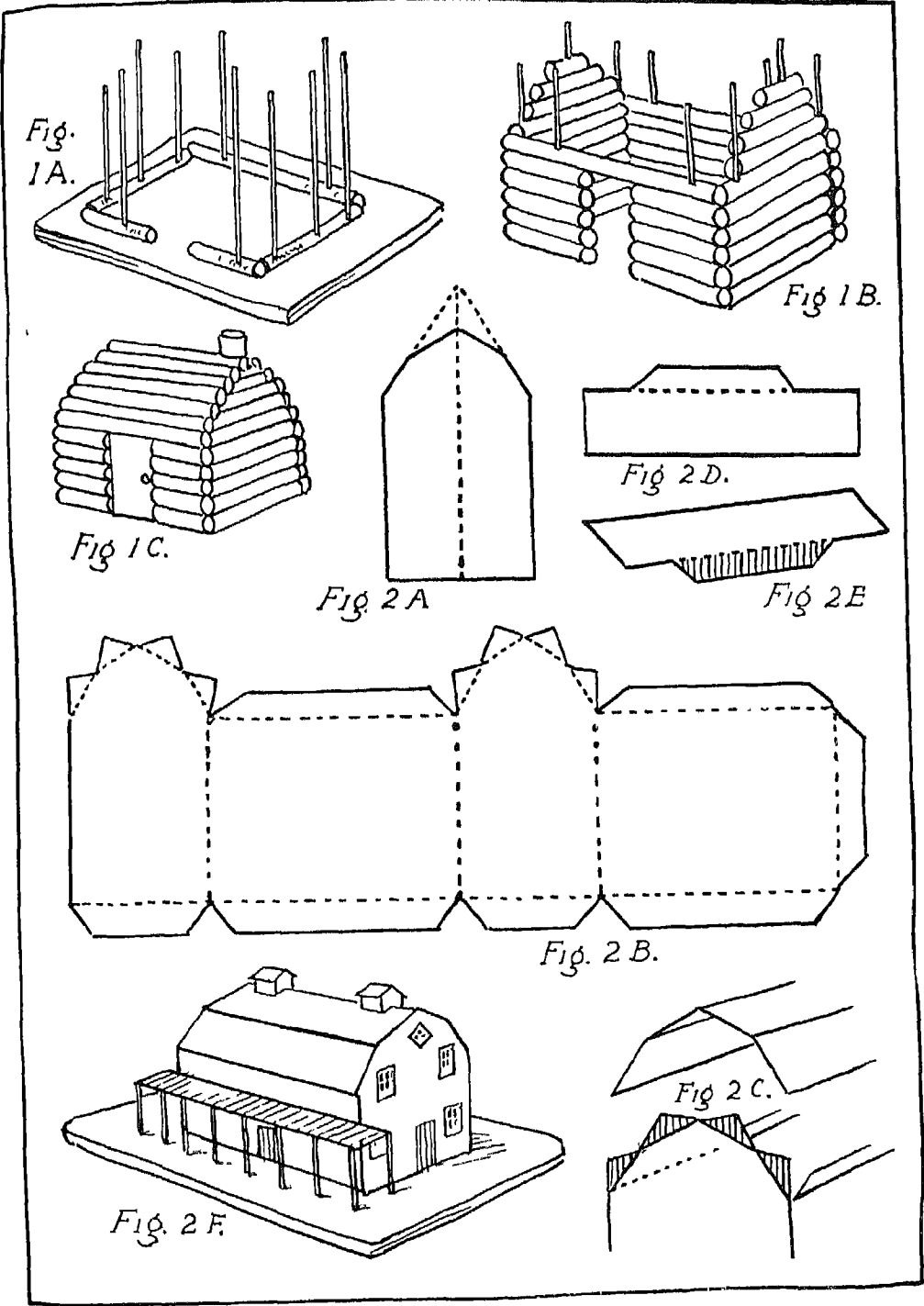



PLATE III

FIG 1 CLAY MODEL OF LUMBERMAN'S SHANTY
FIG. 2 CARDBOARD MODEL OF RANCHER'S HOUSE

CANADA. IV.

In this lesson an attempt is made to produce an Arctic project to illustrate the seal industry of northern Canada A simple camping project is also shown In the course of working with juniors, it will be found that by placing in a natural setting the models made by the children additional interest and zest are given to the work The setting also provides an attractive finish to the models The children who produce the best models may be allowed to make the setting for them In the lesson on the seal, the teacher might with the help of the children prepare on the sand table a large background and foreground, and group a number of the best-modelled seals upon it.

Fig. 1 A shows the two essential shapes used in making a plastic model of a seal The first is a spindle or carrot shape, made by rolling a ball of clay between the hands, the second is a sphere Clay should be used for this model so that it may be painted when it is dry. To shape the head, hold the ball in the left hand, and with the right hand press and pinch it into shape as shown. Place the head aside while the body is modelled. Add a flattened finlike tail and two arm fins to the body, smoothing them out at the joins. The head is attached last, care being taken that the forms are not injured in the process, Fig. 1 B The body is bent a little, as shown, and the children will delight in adding one or two tiny whiskers cut from an old brush When the clay is dry, the seal should be painted greenish-brown with a black nose

For the foreground and background of the scene (Fig. 1 C), two large sheets of cardboard will be required A pastel illustration of ice-clad hills is added to the background in white, pale blue and green The foreground is covered with dark blue and green pastel to represent the sea. Next, an irregular sheet of thick card is cut to form the land This is placed on the base, and upon it are fixed one or two masses of damped and crumpled brown paper to represent rocks The land portion is given a liberal dressing either of salt and flour, or of white pastel dust, to represent snow. The seal, or seals, may now be placed in position to complete the model

The next model is that of a Canadian camp. The first task is to construct the framework of the tent. Two slices of thick bottle cork are stuck on a sheet of thin cardboard Kindergarten sticks are placed vertically into these pieces of cork, and four ordinary brass paper fasteners are fixed to the edges of the card as shown in Fig. 2 A. Notches are made in the tops of the sticks, and tent ropes are added in thread, which is twisted round the sticks and the heads of the paper fasteners A paper pattern is first made of the covering of the tent (Fig 2 B), in order to obtain the correct size for the framework From the pattern the tent covering is cut out in material This is placed over the framework, the end is sewn up and the flat flaps of the board are fixed down with paper fasteners A tripod of twigs with a clay kettle is then prepared (Fig 2 C), and is placed with the tent in a setting suggestive of a scene in the Rocky Mountains, Fig. 2 D Four more ropes are attached to the sticks on the outside of the tent, these extend to four paper fasteners placed some distance away from the sides of the tent

Fig. 3 shows a Trapper cut-out which should be tinted in greys and browns.

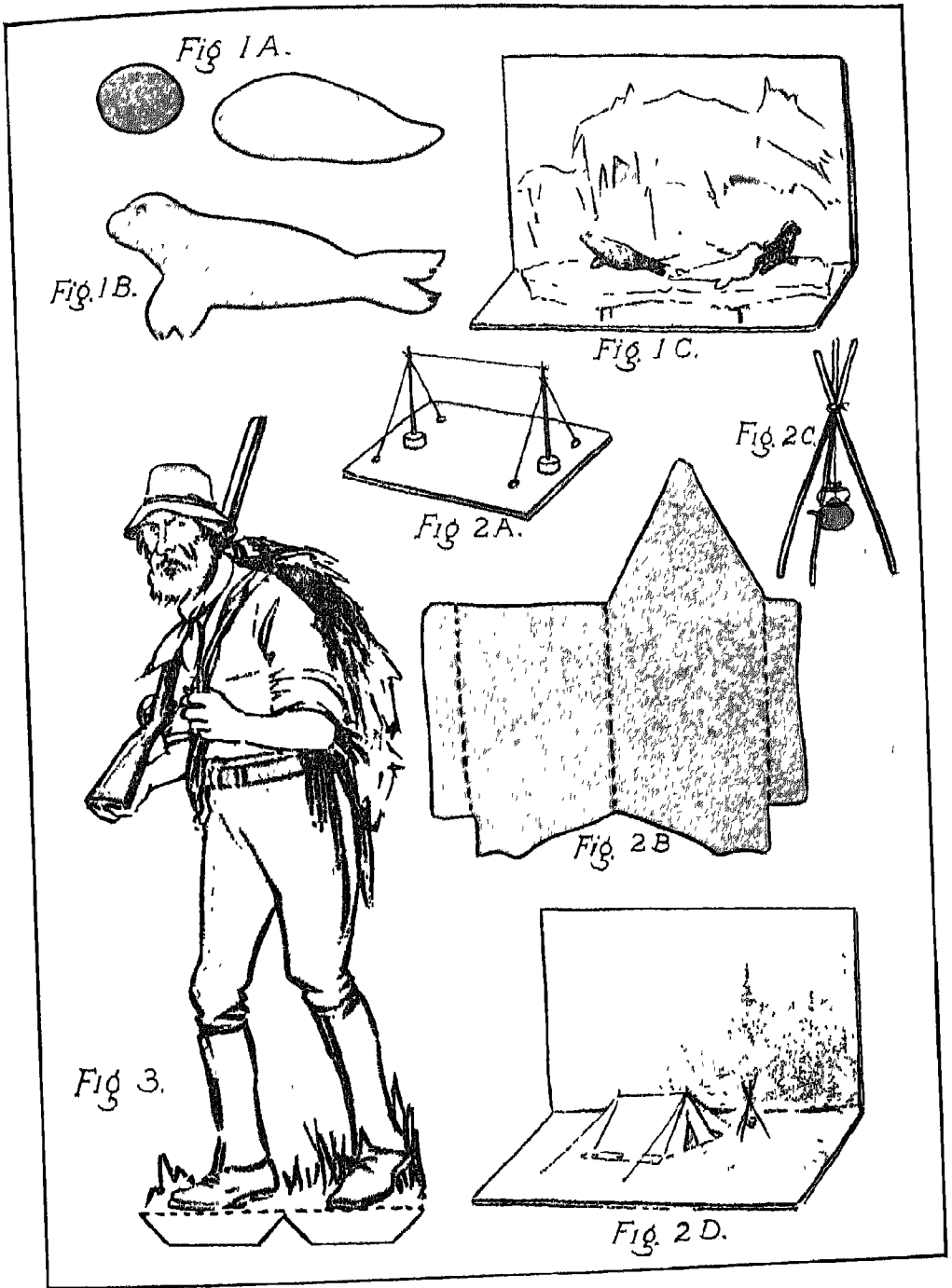



PLATE IV

FIG 1 CLAY MODELS OF SEALS GROUPED TO FORM A SCENE
FIG 2 CAMPING SCENE—TENT IN MATERIAL OR PAPER
FIG 3 CANADIAN TRAPPER CUT-OUT

CANADA. V.

The maple leaf and the beaver are the national emblems of Canada. The first model shown is that of a beaver in clay. Fig. 1 A shows the basic shape which forms the body of the creature. Starting from a sphere, an elliptical shape is rolled out, this is pinched a little at one end and widened at the other to make the characteristic hump in the back of the beaver. Fig. 1 B shows the smaller portions of the body, which should be in strict proportion The head is modelled from a smaller oval mass, the mouth and eyes being marked with the point of the modelling tool, two tiny ears are added. The legs consist of small ham-shaped masses with straight portions attached, the hindlegs being fixed as shown higher up on the body than the forelegs. The tail is a club-shaped mass marked with the peculiar scalelike markings of the beaver. The complete model is shown in Fig. 1 C.

The next exercise is paper-cutting to produce a maple leaf in autumnal tints. It will enhance the interest of this exercise if each child is allowed to prepare his own tinted paper. The child should damp a piece of white cartridge paper and paint it while still wet in brown, red and yellow, allowing the colours to merge naturally. When dry, the sheet should be folded down the middle, and the leaves cut as shown in Fig. 2 A. The leaves are opened out (Fig. 2 B), and veins are added with a pencil or brush.

The next step is to use these leaves for some useful purpose in the classroom A simple bookbinding exercise is suggested. This is in the form of a Canadian scrapbook, which will open out, screen fashion, and show the children's collection of labels and pictures. The teacher should prepare narrow strips of brown or tinted paper from imperial sheets, making each strip the full length of the sheet. Each child must fold his strip into about eight pages, as shown in Fig. 2 C. The maple leaf cut-out is pasted to the front of the first page, with the inscription and name of the child printed in white ink

Fig. 3 shows a Canadian scene which is built up from freely-cut shapes A rectangle of dark blue paper, representing a night sky, is pasted to a mounting sheet Bright yellow stars and a moon are added to the upper part. The mountains and fir trees are cut from dark grey or black paper and stuck on to the sky portion This completes a scene which is suitable for use on a Christmas calendar

No handwork lessons on Canada would be complete without the model of a canoe. The planning of this model is shown in Fig 4 A. A narrow diamond shape is first drawn, care being taken that it is not too wide in the middle The patterns of the bow and stern are then cut in scrap paper, taking the measurement Z Y for the base of each. These patterns are applied in turn to the two appropriate sides of the diamond shape, and are pencilled round as shown in Fig. 4 A. The lines X Y are cut, and the shapes are folded up to form the sides of the canoe Dabs of gum are used on the inner sides at A to join the ends, and at X and Y to fix the middle of each side. The completed model (Fig. 4 C) is painted cream and dark brown, and provided with a seat in the stern, and a tiny matchwood and paper paddle.

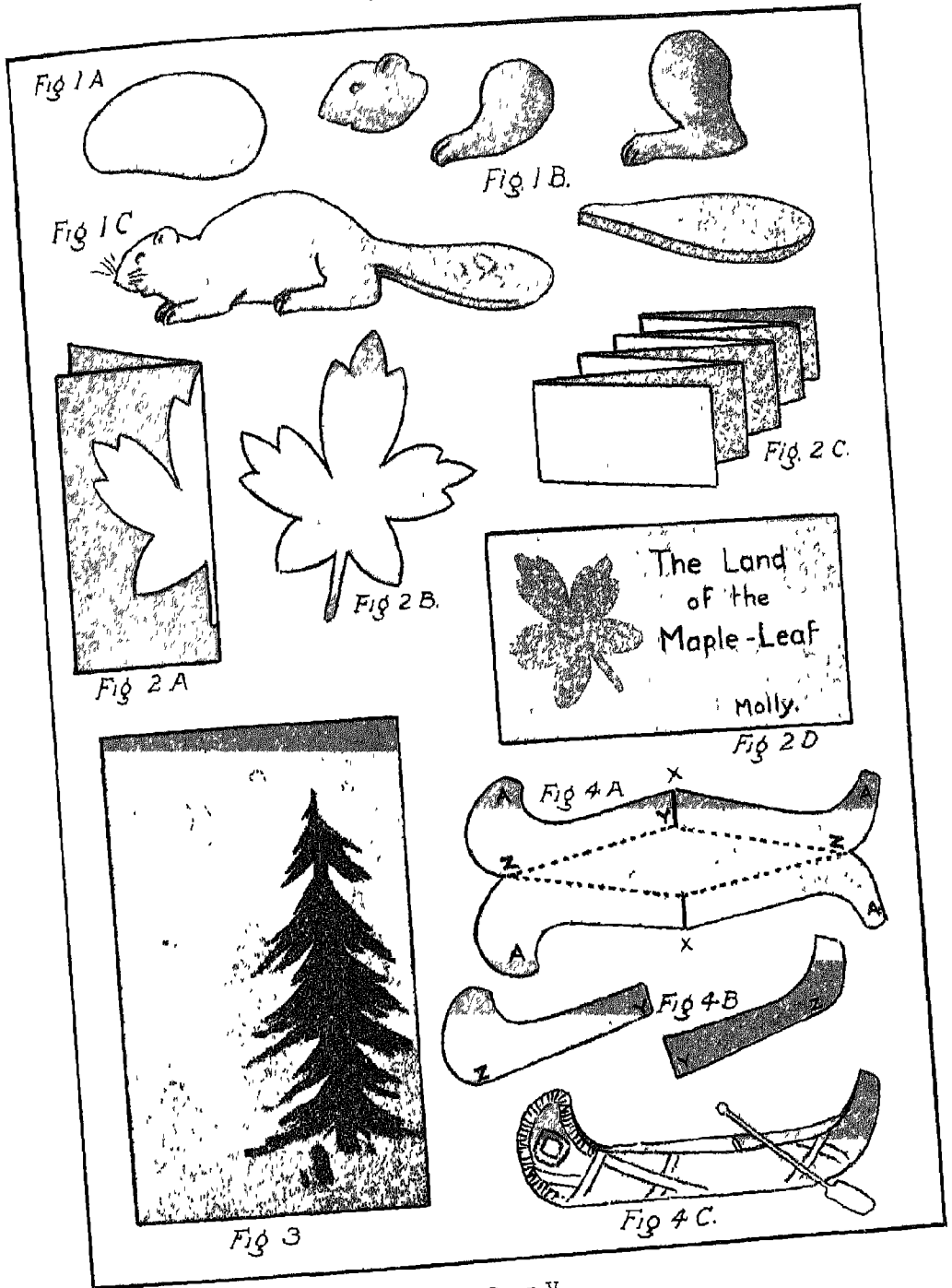



PLATE V

FIG 1. CLAY MODEL OF BEAVER
FIG. 2 PAPER-CUTTING—MAKING A SCRAPBOOK
FIG 3 CUT-OUT PICTURE OF CANADIAN FOREST
FIG. 4 INDIAN CANOE IN CARD

AUSTRALASIA. I.

The lessons are now concerned with Australasia, and begin with the activities of Dutch navigators in that country. The first handwork exercise therefore deals with the making of a Dutch flag Some red, white, and blue paper (gummed for preference) is required, and a sheet of fairly stout mounting paper or thin card The mounting paper is folded carefully into three equal divisions as shown in Fig 1 A The closely-folded paper is used as a pattern, from which the three strips of red, white, and blue gummed paper are cut out to size. (If white gummed paper is not available, the white mounting paper may be used for the middle bar of the flag, but it will be more effective if gummed paper of the same texture as the coloured strips is used)

The folded mounting paper is now opened out, and the coloured strips stuck on between the creases as shown in Fig 1 B, the top strip being red and the lowest one blue The flag is now complete, though the edges may require trimming with the scissors, after straight guiding lines have been drawn across them The next step is to mount the flag. There are two methods of mounting. (1) Some of the children may wrap one end of the flag round a kindergarten stick painted dark brown, paste it in position and add a tiny clay or plasticine knob, as shown in Fig. 1 C. Such flags, with others, are useful for classroom decoration and for the school Christmas tree (2) Other children may paste the flag to a mounting sheet of dark pastel paper, add a flagstaff, and colour with brown and orange pastel

The hunting weapons of the Australian Aborigines provide material for handwork. Fig 2 A shows one of their oblong shields It is made in thin cardboard, either as a free-cutting exercise, or from a folded paper shape to ensure that the two ends are symmetrical The shield is then divided into three, and the oblique striped pattern is added with pencil and ruler. Care will be needed to make the stripes of equal width, they are afterwards painted alternately red and black Two handles for the arm are made by folding strips of paper as shown in Fig 2 B; these are pasted to the back of the shield

Fig. 2 C shows how a spear may be made. The spear head is cut from thin card and inserted in a split kindergarten stick.

A woomerah, or aboriginal throwing-stick, may be constructed from a bent twig This is cut with a right-angled cut at one end (dotted in the diagram, Fig. 2 D), and the spear shaft is placed along the twig, Fig 2 E Another type of woomerah that may be modelled in clay is shown in Fig 2 F It has a shallow V-shaped groove running along it.

The boomerang (Fig. 3) provides an exercise in free-cutting from cardboard.

Geographers tell us that the Australian Aborigine is the laziest and worst builder in the world To make a native dwelling three or four lengths of cane are bent over (Fig 4 A), thrust into a clay base, and tied at the top The sides of the hut are woven over and under with raffia, a space being left for the door. Bits of grass, straw and small twigs are stuck on to the surface of the raffia when complete, Fig 4 B

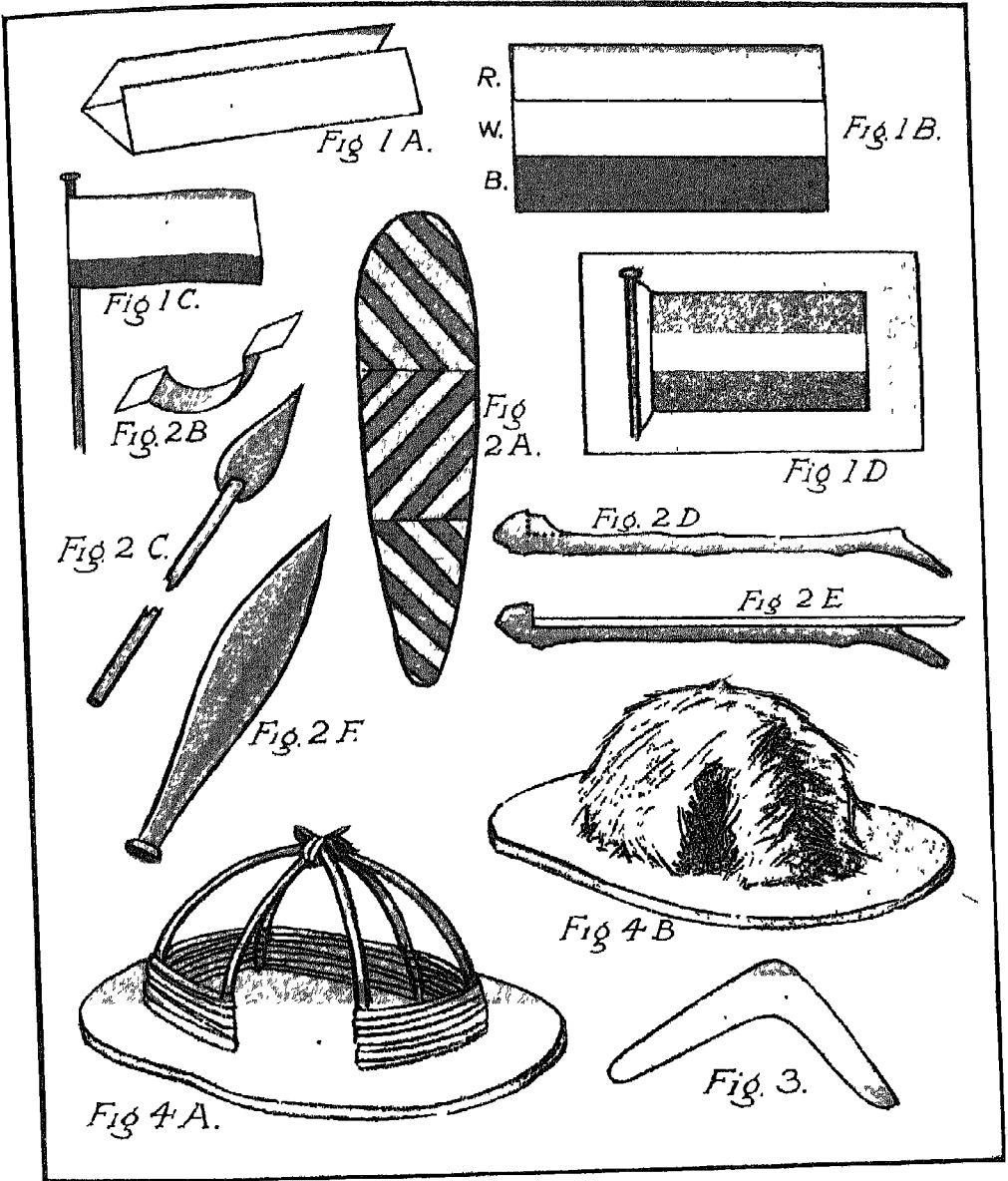



PLATE VI

FIG 1 DUTCH FLAG—PAPER-CUTTING EXERCISE
FIG 2 ABORIGINAL ARMS IN CARD
FIG 3 CARD MODEL OF BOOMERANG
FIG 4 ABORIGINAL DWELLING IN CLAY, CANE AND RAFFIA

AUSTRALASIA. II.

This lesson deals with the lumbering industry, of which the children have heard in connection with the forests of Canada. Fig. 1 shows the model of a lumber worker's saw; which provides a simple exercise in free-cutting. It should be cut from thin card to give substance to the blade. As shown in the diagram, the teeth of the saw are different from those of the usual joiner's saw, they are fairly large, with unbroken intervals between The handle is made by taking two shapes of cardboard and sticking one on each side of the blade. The blade is then painted bluish grey, and the handle dark brown To give further interest to the exercise, a clay model of a tree stump lying down is made, and the saw is inserted into a slit, made by a knife, in the stump, Fig. 1 B.

Continuing with the story of timber, the next model is of a lumber train This is best taken as a group model, several children each making a truck, which are all joined as shown in Fig. 2 B. A simple engine made from a mantle box, on the lines of the C.P R engine, illustrated on page 567, may be attached The construction of a truck is shown in Fig. 2 A. Each truck has for its basis a Swan Vesta match box, which is of the requisite proportions. (An advanced class may be allowed to construct the necessary boxes)

The match box is inverted, as shown in Fig. 2 A, and eight tabs of cardboard, four on each side, are stuck to the inner sides of the box, so as to project a short distance. Next, four holes, two at the front and two at the rear, are bored in the box with a sharp point. Through these holes lengths of thin twine are threaded with a bodkin. Inexpensive wooden button moulds, or discs of cardboard, may be used for the wheels, and these are fitted on to short lengths of kindergarten stick, which are thrust through holes made in the projecting tabs. Short hooks of wire are bent, and fixed at the front and back of the truck for linking When completed, four or five of the trucks are linked together. A log of timber is modelled in clay, and when dry and hard it is laid along the group of trucks and tied on with the lengths of twine already in position. The trucks are painted grey, the log dark brown with orange-yellow ends.

The next model is that of a Maori house constructed in thin card As shown in Fig. 3 A, the basis of this model is a three-sided house shape, with flaps for joining and for sticking it down to a sheet of thicker card. The house is made up, and a single end is planned which is exactly the same size as the end of the house, Fig 3 B. This end is fixed a short distance within the walls, Fig. 3 C. (The horizontal flaps on the tops of the walls are made short in the plan to admit of this) Next, as shown in Fig. 3 D, a roof is fitted to overhang at the back and lie flush with the front of the house. Fixing flaps are left at the front edge of this roof, and these, together with the front fixing flaps of the walls, are to receive flat strips of native carving. The carving is first fixed to the sloping roof parts, then the side posts are added, and finally the central portion. The whole of the model is painted dark brown, the carvings are lighter brown, the window pale blue and black, and the door black, Fig. 3 E.

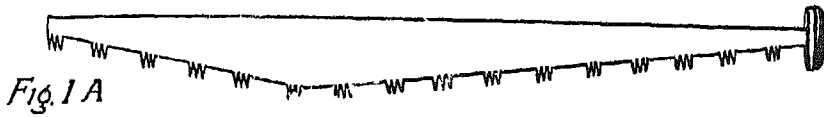
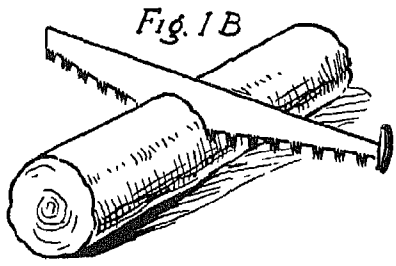
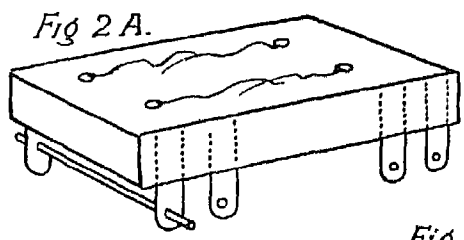
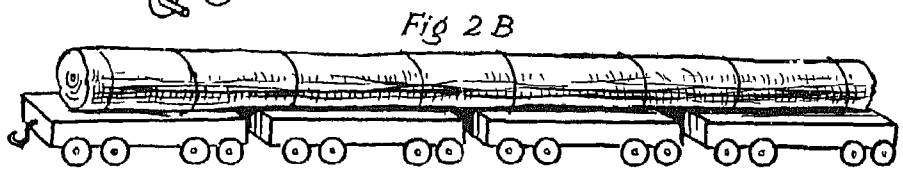
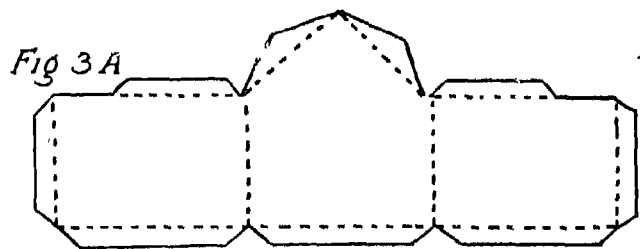
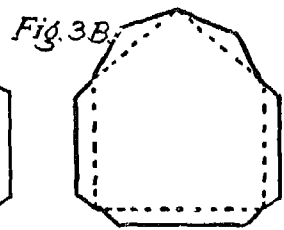
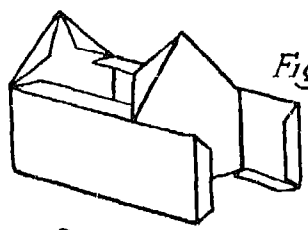
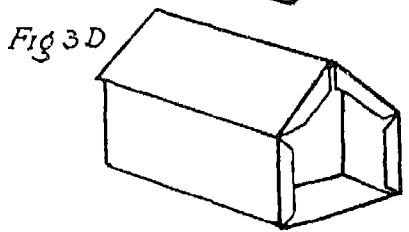
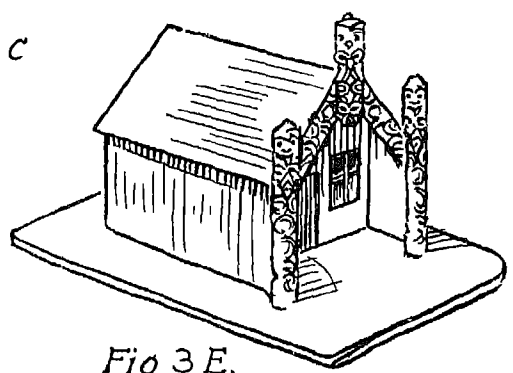



PLATE VII

FIG 1 LUMBER WORKER'S SAW IN CARD
FIG 2 LUMBER TRAIN—OF MATCH BOXES, CARD AND CLAY
FIG 3 MAORI HOUSE IN THIN CARD

AUSTRALASIA. III.

The first model constructed in this lesson is that of a wagon such as might be used for the transportation of wool Naturally, it will have to be a very simple type of wagon, more like the usual trailer often seen drawn behind a tractor or a motor car The children will be interested to know that the camel, as well as the bullock, is an animal sometimes used for transport

The basis of the wagon is a shallow box or tray The children will construct their own trays, planning them first on paper, which may be squared to assist them in making their right angles. The plan of the tray is shown in Fig 1 A Note that the axle flaps differ in size: one pair is made a little longer than the other, to admit of a pair of larger wheels at the back. Backward children may construct the tray from a shallow box lid, sticking on the portions to take the axles in the same way as in the making of a truck

The next step is to stick projecting sides round the top of the inverted tray, and to thrust axles of kindergarten sticks through the holes in the axle flaps, Fig 1 B. Cardboard wheels are cut—two large and two small—and are fixed to the axles. Any tendency to wobble on the part of the wheels may be checked by placing a ½ in circular cardboard washer at the front and back of each wheel. A crossway shaft is cut from cardboard or pulp cane, and fixed to the underside of the front of the wagon by means of a drawing pin, which is first pushed through a disc of thin wood or card to prevent tearing out, Fig. 1 C.

A number of small bales are made by packing old paper into bits of calico. These bales are sewn or tied with string and then loaded on the wagon, Fig 1 D To make the model more interesting, a team of bullocks or camels, cut out from thin card and painted, may be harnessed to the wagon. (For a pattern of a bullock see Vol I., p. 107, for a pattern of a camel see Vol. I., p. 525) In tracing the camel, omit the baggage, and draw the back of the camel only.

The next model is that of Sydney Harbour Bridge. This is a group model, in which several children may participate. The complete model (Fig. 2 E) is constructed of thin cardboard, and rests upon rows of cotton reels which form the supporting pillars. The first step is to make a collection of cotton reels. The end arches of the bridge are shown in Fig 2 A. They are composed of simple rectangular solids, of which the distance X Y must be the height of the cotton reels. The bridge proper (Fig. 2 B) is cut from a long strip of card, the width of which must be that of X Y on Fig 2 A. The pillars and cotton reels are stuck to a mounting board, and the line is stuck in position across. The pattern of the arch is cut in folded paper, Fig 2 C. It is first tested for length and then used to produce the two arches which are fixed as shown in Fig. 2 D, these may be left solid or cut away The vertical bars, joining the arch and the line, are added in thread with a needle. The bridge should now receive a coat of steel-grey water colour, after which one or two tiny boats should be added below.

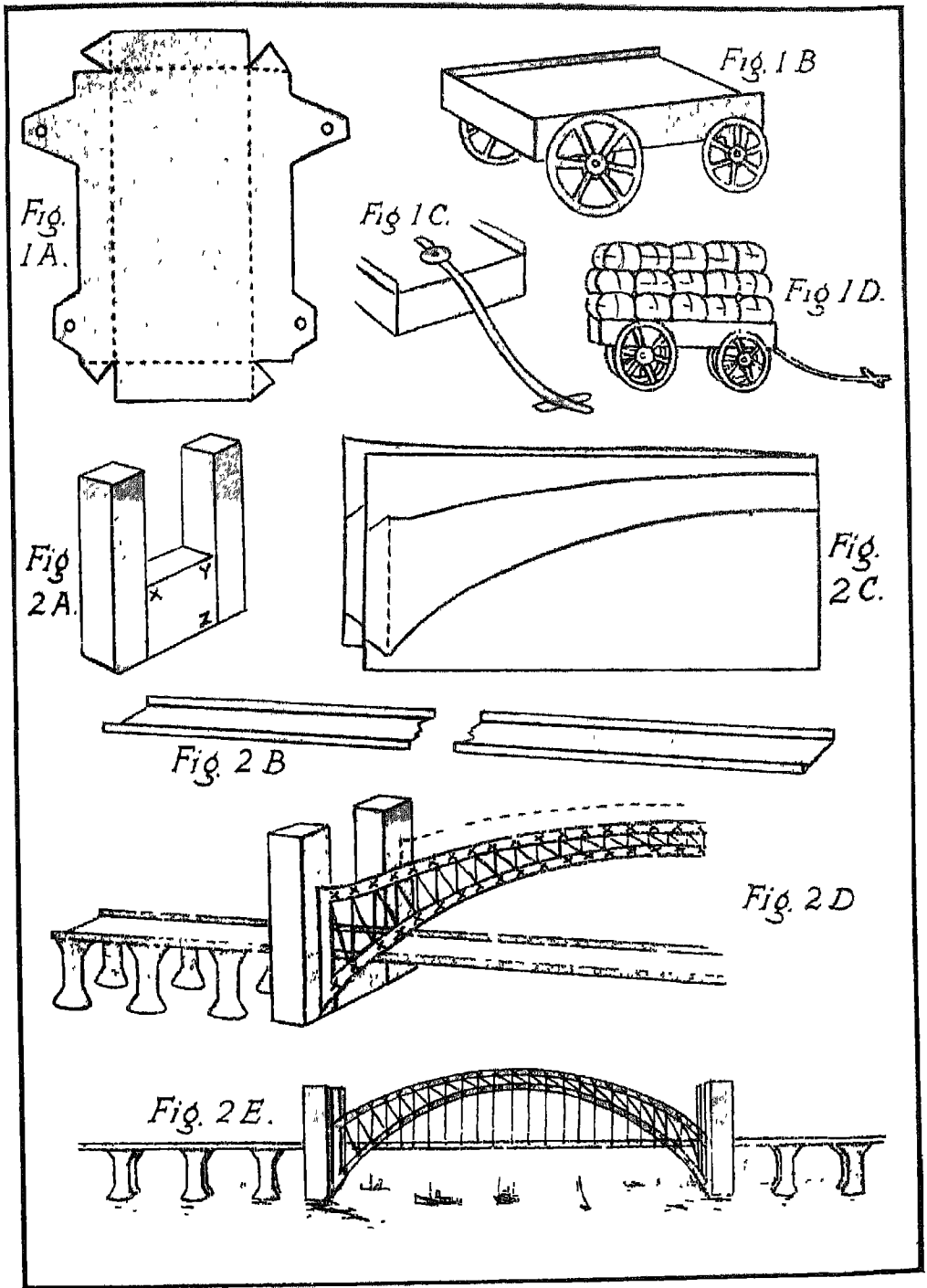



PLATE VIII

FIG 1 WOOL WAGON IN THIN CARD
FIG 2 SYDNEY HARBOUR BRIDGE—IN CARDBOARD AND COTTON REELS

AUSTRALASIA. IV.

From the study of houses much can be learnt of the climate of a country and the culture of a race, and it is interesting to compare and contrast the dwellings of different peoples. The Papuan house, which is modelled in this lesson, is almost the same in structure as that of the primitive lake dweller, which was considered in Vol I., p. 113. The present race of Papuans, therefore, dwell in almost the same kind of house as our own British ancestors.

This model of the Papuan house is constructed in thin card, the plan of which is shown in Fig. 1 A. Note that it follows the usual shape of a house, except that the front end of the house is taller than the back, which gives a downward slope to the sides. The completed house is fixed to a large sheet of stout cardboard, as shown in Fig 1 B This sheet of card is made to project so that it produces a platform in front. The sloping roof is then cut from a flat sheet of card, the front of which is also made a little wider than the back It may be advisable to let the children make a pattern in paper and test it for size before cutting the final roof The roof is folded down the middle (Fig. 1 C), and gummed into position.

The house is then painted brown When dry, it is given a coating of gum or glue, and short lengths of straw or dried grass are stuck on. At the point of the roof at the front a few extra long stems are fixed, as shown in Fig. 1 D. Two ladders of thin twigs will be required, and it now remains to make the base for the house A rectangle of stakes made from twigs is fixed into a slab of clay. The house is placed carefully on these twigs, and the model is now complete. A project of a modern lake village may be constructed by placing in rows face to face, the houses made by the children, with a central platform running down between them.

No lesson on Australia would be complete without a model of a kangaroo A toy model of a kangaroo is given in Fig. 2 B As will be seen in Fig. 2 A, the toy consists of separate segments which may be traced by the teacher, directly from the plate, and hectographed for class use. Only one fore leg and one back leg are shown, though two of each will be required for the model. The shapes are cut out and painted in varying shades of brown. Holes are punched (preferably with a leather punch), and the parts are joined together with small brass paper fasteners (about size 00) These toys will be found useful in providing material for action drawings of the kangaroo

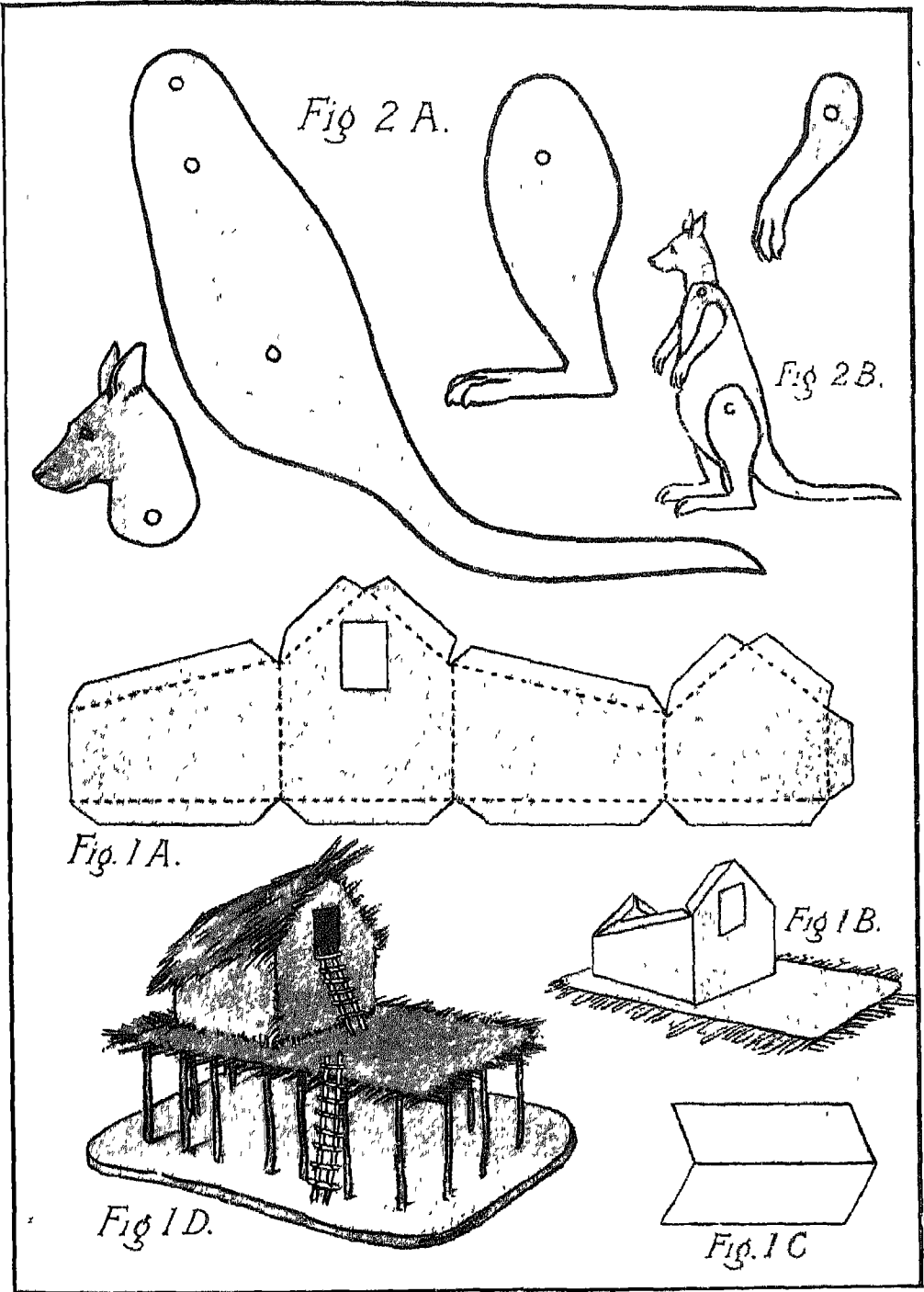



PLATE IX

FIG 1 PAPUAN HOUSE IN THIN CARD
FIG 2 TOY MODEL OF A KANGAROO

AUSTRALASIA. V.

In this lesson the models take the form of a collection of toys and cut-outs illustrating Australasian bird life. The parrot is a common bird of the tropical forests, and may be familiar to many children as a pet bird Fig. 1 shows a pattern for a balancing parrot toy. The teacher should trace the outline and duplicate it on sheets of paper, from which the children may trace it for themselves on to thin cardboard (The children will not require carbon paper, for they may blacklead the inside outline of their drawings, which will function in the same way as carbon paper.) The shape is next tinted in crayon or water colour with the familiar hues of the parrot plumage,—bright green for the body, green and yellow for the tail, scarlet for the head, orange for the beak, and brown for the tree stem. If water colour is used, a few strokes of ivory black, applied in the manner shown in the sketch, will help to strengthen the shape and add brilliance to the colours When thoroughly dry, the outline is carefully cut round, and the figure balanced on a string or thin rod placed between the tail base and the stem. Perhaps some of the more skilful boys may like to make this model in thin wood with a fret saw.

Fig. 2 is a similar toy showing the laughing jackass. If coloured carefully, this makes an exceedingly pretty model As before, the children trace their shapes on to the cardboard and proceed to the colouring. By way of a change, they may be allowed to use body colour to give a more brilliant finish. This is produced by adding Chinese white to water colours, which gives them an opaque appearance. The bird is tinted in shades of brown, black and white, with occasional tinges of pale green The foliage drawn on bold broad lines adds to the attractiveness of the model The stem of the foliage is tinted brown, and the leaves either bright green by way of contrast, or painted in harmonising autumnal tints of yellow, brown and red. As in the model of the parrot, the point of balance is between the base of the tail and the foliage stem.

Fig. 3 shows the emu, which should be compared with the ostrich cut-out in Vol I., p 525. In cutting out this bird, leave solid the part between the two slender legs to act as a support for the completed cut-out. The bird should be tinted brown with merging masses of grey, the beak and legs should be orange.

Fig 4 shows the kiwi, which is constructed on similar lines, with a supporting solid portion left at the legs. This model is tinted medium brown, with orange beak and legs.

Fig 5 shows the cut-out of the lyre bird, one of the most picturesque of Australia's feathered creatures. The decorative tail is painted black, white and red, the body a dark grey, the beak and legs orange The leg support should again be left solid.

In all this work, the children should be encouraged to bring along their picture books, advertisements, etc., to help them with their tinting.

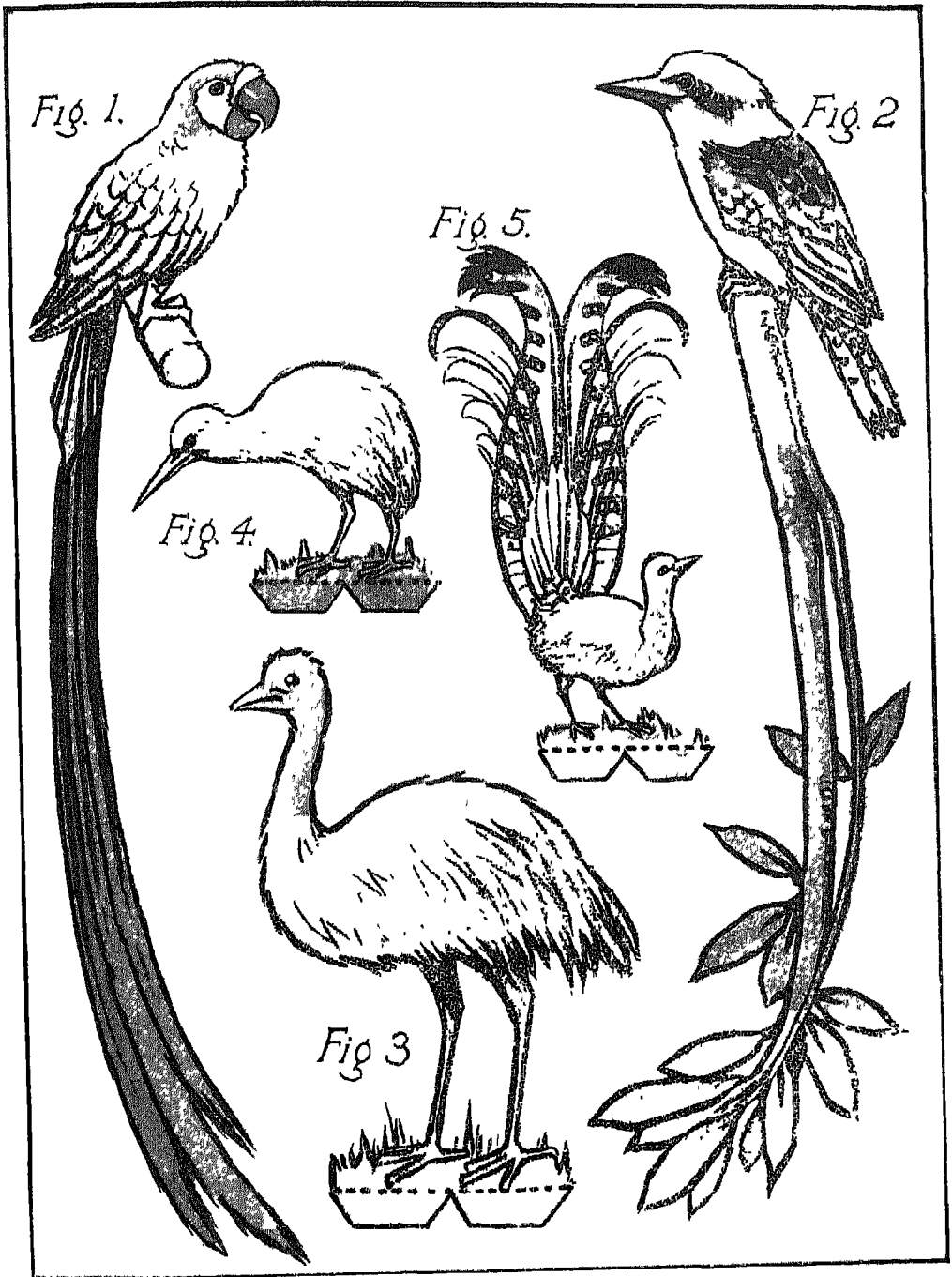
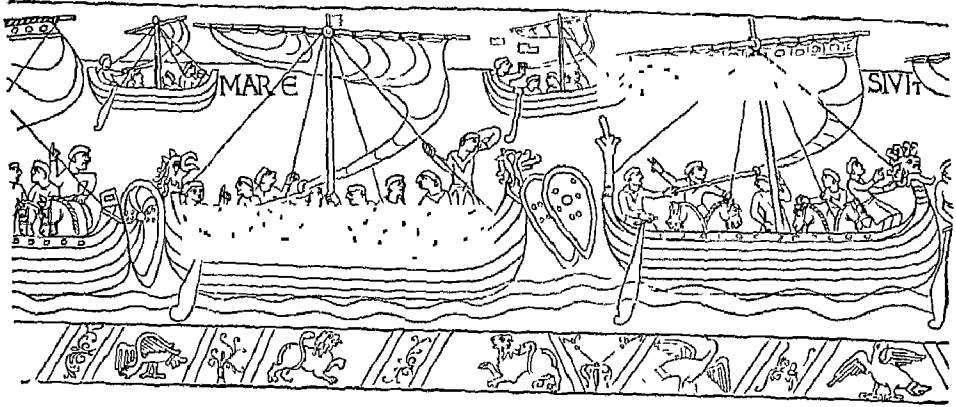
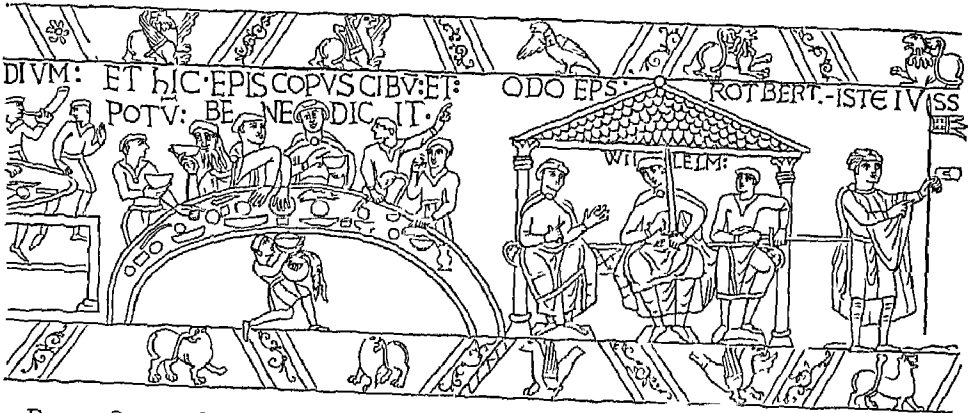
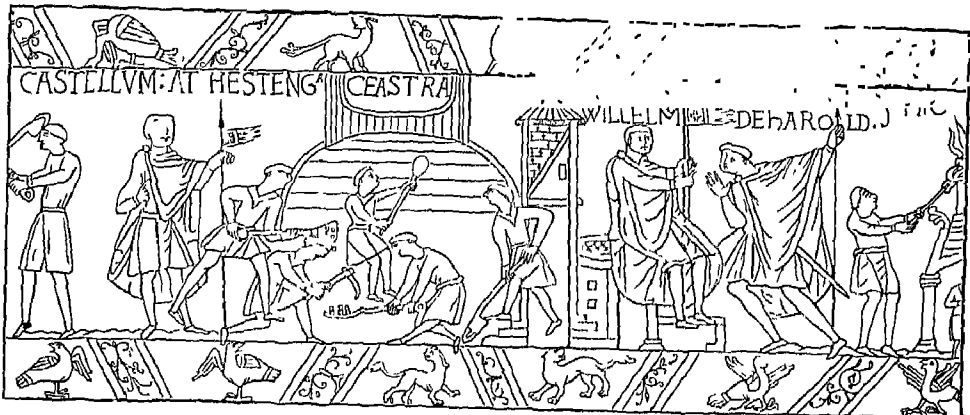



PLATE X.

FIG. 1 BALANCING TOY OF PARROT
FIG 2 BALANCING TOY OF LAUGHING JACKASS
FIG 3 EMU CUT-OUT
FIG 4 KIWI CUT-OUT
FIG. 5 LYRE BIRD CUT-OUT

THE TEACHING OF DECORATIVE NEEDLEWORK IN THE PRIMARY SCHOOL

William Sailing to England

Bishop Odo of Bayeux Saying Grace at Banquet after Landing

William Holding Council with His Brothers, Odo and Robert

Fortification of William's Camp at Hastings

Messenger Brings Tidings to William of Harold's Movements

SCENES FROM THE BAYEUX TAPESTRY

A THREE YEARS' COURSE OF DECORATIVE NEEDLEWORK FOR CHILDREN FROM EIGHT TO ELEVEN YEARS OF AGE

THE course of decorative needlework set out in these volumes begins with the second year in the primary school, and is intended to cover work for a period of three years.

GENERAL INTRODUCTION

"It is also of first importance that the crafts taught should be genuine, and representative of a great historic line. . . Craft work, as we understand it here, must be inspired by one of the great traditions, and unless it is so cannot fill the place we assign to it" (From the *Report of the Consultative Committee on the Primary School.*)

Decorative needlework, which in its later stages is embroidery, answers in full to the requirements set forth in the above quotation. The lineage and traditions of embroidery are unimpeachable, and artists, inspired by the work of former centuries, are needed to execute work typical of English life, manners and customs, in the twentieth century. English Church work of the thirteenth and fourteenth centuries still stands unsurpassed in any part of the world. With the *Reformation* came the decline of English embroidery, followed by a revival and a new style in Elizabethan times, from that period there has been a steady decline to the present day

Embroidery is a world-wide craft, centuries old, but owing to the perishable nature of the materials used, very early examples have not survived as have works of art executed in other more durable materials. Nevertheless, ancient statues, tiles, ceramics and bronzes show patterns on costumes that were the work of the needle and the loom To quote one example, Persia is known to have excelled in textile art for many centuries, but owing to the passage of time and to many invasions of that country, comparatively few examples of any antiquity have survived

Traditional art has much to teach, but it should not be slavishly copied. The work of former days expressed the manners and life of the era in which it was executed. An endeavour should be made to produce something typical of the present age, using the clean decisive lines and colours that are symbolical of to-day

All the designs used in the lessons for this year are geometrical in character Children generally find this type of design much easier to execute than the more difficult conventional designs taken from natural forms. Geometrical design follows naturally from the paper cutting and pattern making of the infant school The stitches used, and the ways in which they are used, are such as will prove useful later on in the child's school career and after she has left school. The stitches are suitable to use on household linen and on clothes. Few people who are engaged in earning their living have time to do much needlework, and women generally regard the art as a leisure occupation, for which a knowledge of decorative stitches is invaluable. Articles for the house may attract some workers,

while others will prefer to make and beautify things for personal wear. In these days of mass production many garments are produced better and more cheaply than the average needlewoman can hope to make them, but with a certain amount of skill with the needle she can decorate the ready-made clothes in such a way as will render them individual and attractive By this means she will have an article of distinctive appearance, satisfactory both from the aesthetic and economic standpoints.

The choice of the articles described here has been governed by the considerations mentioned in the previous paragraph as well as by the need for utility—fitness for their purpose. Also, as far as possible, the articles chosen are those that a child would like to own, and for this reason she will work speedily and well with a view to their completion at the earliest possible date.

The good, accurate work of the world is almost invariably done by rapid workers This is not a supposition, but a proven fact. The natural speed of working varies with the individual, but the native gift can be cultivated and realised to its full extent, and there are few people who cannot attain a reasonable degree of speed if they make sincere efforts to this end Each succeeding experiment should aim at increased speed without any lowering of the standard of quality. The beginner who is encouraged to work quickly, realises her natural speed and develops a working rhythm, a worker who has been allowed to arrive with the snail has great difficulty later on in developing speed, and her work is liable to look laboured and lifeless. It is also well to remember that work done at one's natural speed is produced without undue effort and is satisfactory.

The principles of design involved in the decoration of the simple articles made in these lessons have not been discussed, as explanations would not aid but confuse children of this age. Simple rhythm and balance have inevitably entered into the designs, but at this stage it is wiser to give the child experience of actually working with them, leaving the abstract explanations to a later stage of the child's growth. Neither is a detailed study of colour entered upon here. Experience of the effect of harmony and contrast will suffice for the present

There is no hard and fast rule as to which colours may, or may not, be used together; any colours may be used together—if they are used in the right proportions. Children love colour and if left to choose for themselves, seldom go far wrong, even though the results may be, on occasion, purple cows and blue geese. The purple cows, after all, open up an interesting field for investigation: they may show that children are not realists but possess an innate sense of design, or merely that they *love* purple Certainly the average child has a vivid imagination which unfortunately is not always cultivated.

The colours used in the original samples illustrated are generally the colours of the spectrum, gradations of tone are avoided at this stage. Use of pure colour is safest. Tones, in the hands of a beginner, frequently lead to dull, uninteresting work, because the child uses too many tones, the wrong tones, or wrong proportions of the tones. Tone balance is a difficult and intriguing problem that may well wait.

The illustrations showing designs used on the originals in each lesson are marked with the numbers of the colours required for the part, as a guide to the teacher if exact duplication of the original is desired.

The embroidery stitches used are very simple, but they are most effective on plain articles. Chain, blanket and back stitch are neither described nor illustrated in the lessons because they are well-known to everyone. The ordinary sewing stitches used in the construction of articles are also neither described nor illustrated, because they are learnt elsewhere and they are not decorative stitches. The less familiar embroidery stitches are illustrated, but not described, as illustrations of stitches are much easier to follow than are descriptions of them

Certain important points about some stitches are mentioned, as the successful working of the stitch depends upon attention to these points.

The material used in the articles illustrated is in each case of suitable kind and of good quality; other materials are suggested as alternatives when it is not possible to use the materials of which the originals were made Careful planning before any cutting-out is done will economise materials. Some of the articles illustrated are deliberately cut to measurements that are fractions or multiples of 36, as 36 inches is the most usual width of material made. The size of the articles suggested could easily be increased or decreased to facilitate more economical cutting of other widths of material.

The needles used throughout are as large as is compatible with good work; at this age a large needle is easier to hold and use than a small one. Rug needles, basketry needles, No. 5 sewing needle and (once) a number 6 sewing needle are required. The cottons and wool are also as coarse as is possible to use with pleasing results Silk is omitted because it would cause only waste and disappointment.

Work should be kept in a white cloth or bag, as beautiful work is spoiled if it becomes grubby while being worked. Care should also be taken of embroidery cotton and other materials Wools and cottons should be plaited as soon as they are cut and a thread should be drawn out as required Scissors, needles and pins should be bright, sharp and clean Thimbles must be smooth, and it should be remembered that good work cannot be done by a child unless she wears a thimble all the time she is sewing Once a child has become accustomed to wearing a thimble she will find that she cannot work without it. All threads must be cut with scissors, threads must never be broken or bitten, or the embroidery stitches will be dragged and the work spoilt.

Pressing is necessary to obtain a good finish, and it must be done during construction, one pressing when the article is complete is not enough.

I. A TOOL POCHETTE IN TACKING STITCH

BAD workmen always lose their tools,—or blame them. The tool pochette that is suggested as the article on which to begin learning decorative stitches should help to correct the habits of losing and blaming tools.

All children possess an innate instinct of collection, which usually operates indiscriminately, so that much of the material collected is valueless This instinct may be directed, however, and in the present instance may be wisely directed to the collection of the requisite tools. The collector speedily develops a sense of pride in his possessions Members of the simplest civilisations collect tools, and when a member finds any particular tool good—or in other words, useful—he begins to decorate it To "find useful" implies a degree of skill on the part of the user. Similarly, young pupils who have acquired a degree of skill will begin to prize their tools, to use them more and more, and to replace any that prove suitable.

The tools collected will soon acquire a personal history; in addition to this the social history of the tools will prove interesting to their owners Many centuries ago needles were made of bone, and to this day bone needles are used by native workers

in many parts of the world Steel needles were made in Damascus, Antioch and Adrianople in the early Middle Ages Englishmen who went on the Crusades were likely to have seen them, and in all probability the Crusaders brought steel needles back as presents to their wives The wonderful embroideries for which the age of chivalry is famous could hardly have been executed without needles of great fineness The earliest evidence of the existence of steel needles in Europe suggests that they were first made at Nuremberg (Nürnberg) in 1370 Needles were very precious in those days; they were kept in beautiful cases which hung on a cord or chain fastened round the waist of the lady who used them.

Bronze pins were made at Nuremberg in 1365; very good pins were produced in England also in the same century. Thimbles have been in use from very early times They were probably first made of leather and bone, and they appear to have been smooth.

The date of the thimble, as we know it, is uncertain, but thimbles were certainly made in the Middle Ages. Scissors used to be very much larger than they are to-day; illustrations of scissors culled from various representations of life in the early years of the fifteenth century show that they were then becoming more like the modern articles.

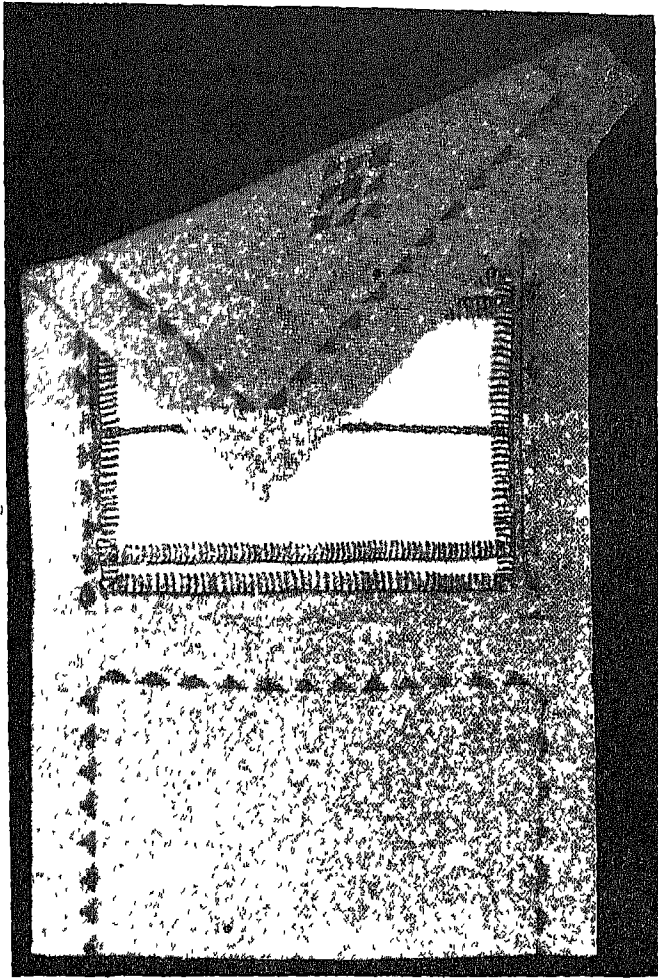
Few tools are needed to start embroidery, and more can be added as they are required The tools required as personal property to be kept in the tool pochette are as follows:

A tape measure.
A guider.
A thimble.
A pair of small, firm, sharp-pointed scissors.
Pins (small whites)
Needles (sizes 5 and 6)

There are good and bad tools The bad ones, which are usually cheap to buy, are in the end the most expensive to use A "Dean" tape measure is accurate, and, because of its good quality, wears a long time A thimble should fit and be smooth and well worn, well worn it cannot be when its owner is eight years old, but if it is rough it can be smoothed by rubbing with fine emery or carborundum paper. Scissors should have firm, sharp blades and keen points. Pins should be "small whites". Work can be spoilt by the marks made by bad pins; even good pins wear out with constant use,—that is, they lose their points and their covering—with the result that they pull and mark the stuff At that stage they should be replaced with new ones Needles must be free from rust, or they will mark the material and slow up the worker's speed, which usually means the loss of that working rhythm which is necessary for good, even embroidery. A guider is a small piece of cardboard, about 1½ in. by 2½ in, notched at certain places to measure the width of hems (See Fig 3) This method of measuring hems is more rapid and easier than using the tape measure

Class tools and materials required include.

Tacking cotton, No 50.
Large cutting-out scissors.
White sewing cotton, No 40
Natural linen, unbleached cotton, casement cloth, or some similar material
Cream or white flannel, or similar material.
Dress fasteners (white)
D.M C *coton à broder*, No. 16, in clear, pure colours

A notebook, in the form of a sampler, is invaluable in decorative needlework. As well as the decorative stitches themselves, certain ordinary sewing stitches are necessary in the construction of articles finished with decorative stitchery. The child may already know the sewing stitches required, in which case they need not be practised on the sampler, but a beginning may be made with the decorative stitches. For a sampler it is sufficient to have a piece of material only large enough on which to learn stitches. On this the child may learn the stitches

TOOL POCHETTE

without becoming weary of them before the actual work is started. It is a great advantage to have a material of loose, open weave, the threads help in keeping the rows of stitchery straight.

The stitches needed on the pochette are:

Ordinary tacking Slip-stitching Over-sewing	Ordinary sewing stitches
Decorative tacking stitch Blanket stitch Chain stitch	Decorative stitches.

The four sides of the sampler should have hems turned up in the same manner as that advised for the pochette. These hems should be left tacked, and the different stitches may be executed on them as the need arises.

When tacking is being done several points should be remembered:

1. Use *tacking* cotton; this cotton is of inferior quality, it breaks under strain and thus helps to avoid puckering.

2. Always pin the material together before tacking

3. Use a knot on the end of the thread and start with a back stitch.

4. Tack hems close to the edges.

5. Pin one end of the hem to the table when beginning to tack.

6. Make well-defined alternate long and short stitches.

7. Keep the material flat on the table when tacking; by this method it is nearly impossible to do otherwise than take alternate long and short stitches. the tacking is then straighter and the hem lies flatter when finished.

8. Finish off the tacking thread with two or three large stitches.

9. Cut the tacking thread every few inches when taking it out, or the material and stitches may be injured

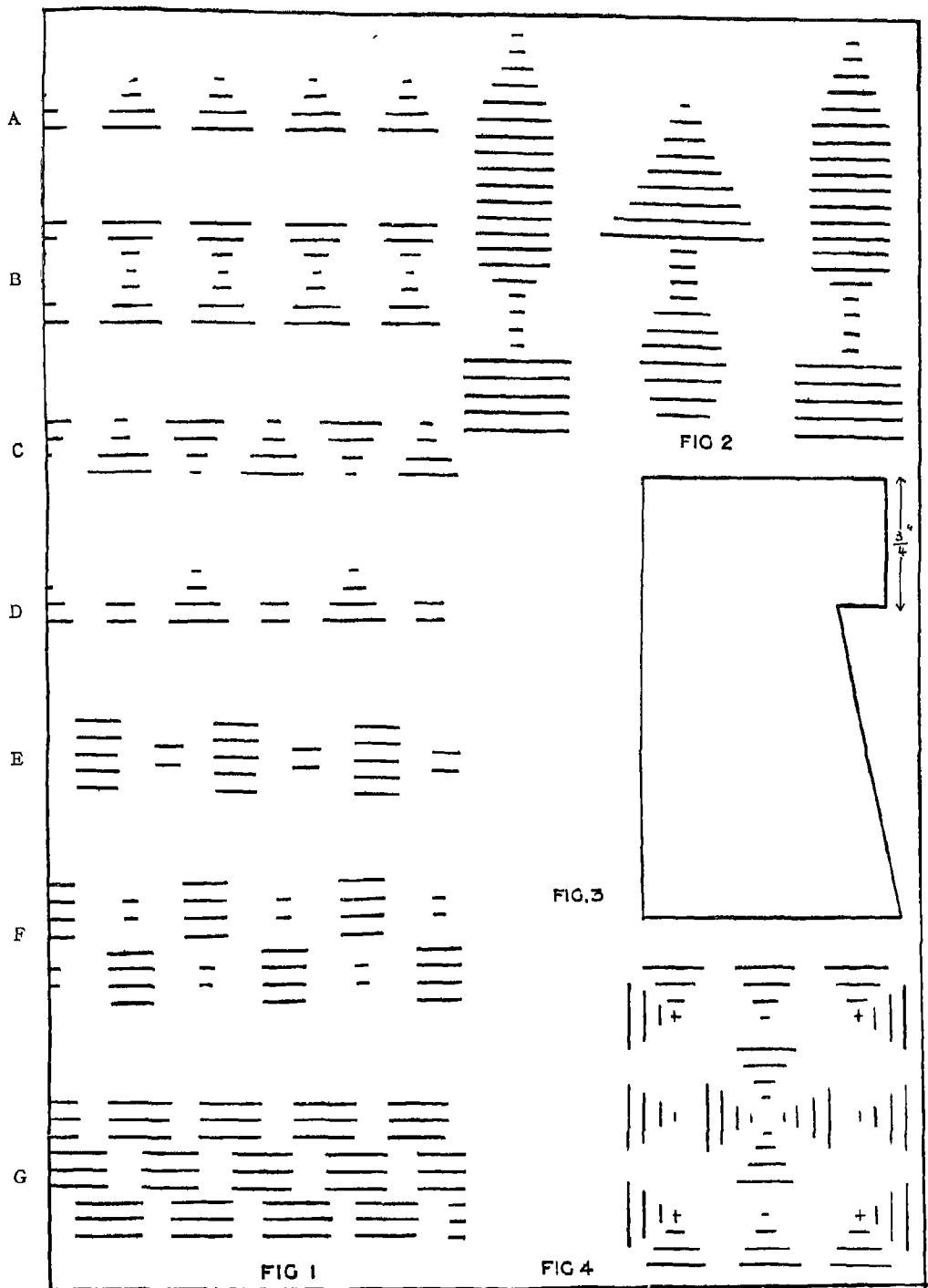
Careful attention to such simple constructional details as these makes all the difference to the appearance of the finished work. Good embroidery cannot save work which has been treated with bad cutting, puckering and lack of tacking.

The tool pochette is made from a piece of natural linen 9 in. by 18 in.; this allows 1 in. for the hem. Material is frequently wasted by crooked cutting. This trouble is easily remedied by measuring the amount of material required, drawing threads at the marked points, and cutting by the lines made where the threads have been withdrawn. Except in a few cases it is wiser not to use the selvedge itself The threads in the selvedge are usually tighter than those in the remainder of the material: if a tight selvedge is used to avoid turning in on one side, the hem is likely to pull, and certainly does so when it has been washed. Cutting the selvedge off is unnecessary, snipping a few threads every two or three inches will let the material "give," and the selvedge can then be turned in like a raw edge.

The hem on the pochette is ¾ in. wide when finished; ¼ in. of the 1 in. allowed for the hem is used for turning. The two long sides are turned up first, pinned and tacked, and the two short ends are turned last. The corners are not mitred, as mitring corners is too difficult at this stage; the hems on the short sides are simply folded over the ends of the hems on the long sides The small piece (¾ in. in depth) from the inside of the hem to the outer edge of the pochette is slip-stitched; the folded ends of the hems are top-sewn together. The pochette is then ready for its decorative tacking stitchery.

Tacking stitch is an easy and effective method of decorating simple articles, at the same time tacking stitch borders are only the introductory stage to a more ambitious style of decoration Darned work, as the more advanced embroidery of this nature is called, is to be found in examples from Egypt, Persia, Turkey and the Near East, as well as in some English samplers When darned work is at its best the whole surface of the material is covered with a geometrical pattern, or the background to a design may be filled in with darning

It is a very simple but beautiful form of embroidery. The more simple form of darned work here called tacking stitch can be executed by a child of eight years. A warning is necessary. The decoration is executed so easily and rapidly that the beginner is tempted to use it indiscriminately. The decoration of any place that can possibly have stitches put on it does not of necessity make the article more beautiful, in fact, the reverse is often the case The material, as well as the stitches, has beauty. The worker should bear in mind several points that are essential to good design. The decoration must be part of the pochette itself; it must not be, or have the appearance of being, an afterthought. Extraneous ornamentation is not design. Decoration must be in keeping with the article on which it is used, and it must also take account of the lines of construction.

Tacking stitch designs should be practised on the sampler If the material of the sampler is of open weave the threads will be a help in keeping the designs straight. If it is not possible to follow the threads easily,

FIGS 1, 2, AND 4 BUILDING PATTERNS FOR DECORATIVE TACKING
FIG 3 A GUIDER TO MEASURE THE WIDTH OF HEMS

it will help the young worker to put pencil dots at intervals, or a line of ordinary tacking, but these props should be dispensed with as soon as possible, and the lines kept straight by the eye

The even length of stitch in ancient work was produced by counting the threads, but this practice is a strain on the eyesight. The length of the stitch can be judged by the eye with sufficient accuracy to give results that are pleasing for all ordinary purposes It is advisable to remember that for children decorative stitchery is a happy way of developing needle skill, as well as a means of making objects that give immediate satisfaction to their owners Fig 1 shows the process of building up simple patterns: lines B, C and D are based on the triangle shown in line A; lines E, F and G are built up on variation of a rectangle

An infinite variety of simple patterns can be evolved, but care must be taken that they do not produce a weak, disconnected design The patterns when finished should look as nearly like geometrical solids as it is possible to make them with this form of stitchery. Isolated *motifs* such as those shown in Figs. 2 and 4, and on the flap of the pochette, are more difficult to execute than are all-over patterns, or a band of decoration such as is illustrated in the last line of Fig. 1.

The most suitable needles for decorative tacking are Nos. 4 and 5. If the needle is too small the cotton becomes roughened and then frays; in addition it is not easy to pull the thread through the material, as the needle is not making a hole sufficiently large. The first row of decorative tacking on a hem should be immediately above or below the line of ordinary tacking; this ensures the security of the turning of the hem. When this row is finished the tacking should be removed and the pattern completed. The stitches in the pattern should be close together to give a solid effect Illustrations of patterns for decorative tacking necessarily exaggerate the spaces between the stitches, actual work will give a compact effect of connected blocks of colour, for the spaces between the rows of stitches will practically disappear. A knot on the end of the thread is advisable, it may be tucked under the hem so as not to be visible If the decoration is executed evenly the pattern in reverse will appear on the wrong side; the most should be made of this fact when encouraging the children to produce regularity of stitching.

Simple patterns are better executed in one clear colour, but as the work advances two or more *pure* colours may be used

When the decoration is finished the pochette is ready for making up Fold over 4 in. for the pocket and pin it into place. Next fold the whole pochette and mark the places for sewing on the clasps The clasps should be sewn on the hem where there is a double thickness of material; the thick section of the clasp,—that is, the piece with a hole in it,—should be sewn on the pocket side, the lighter section which contains the clasp itself should be sewn on the flap of the pochette, as it is less likely to rub through with use. Unpin the pocket and sew on the clasps; pin up the pocket again and top-sew the sides together, using No. 40 cotton, and a finer sewing needle.

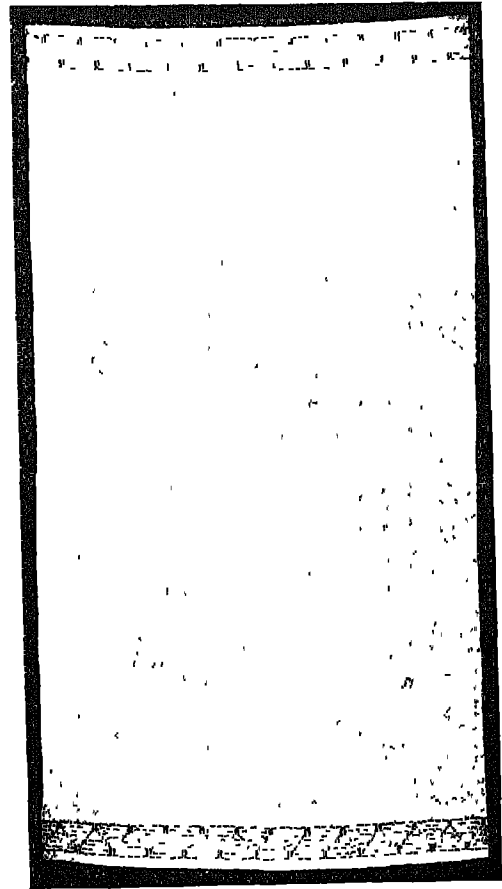
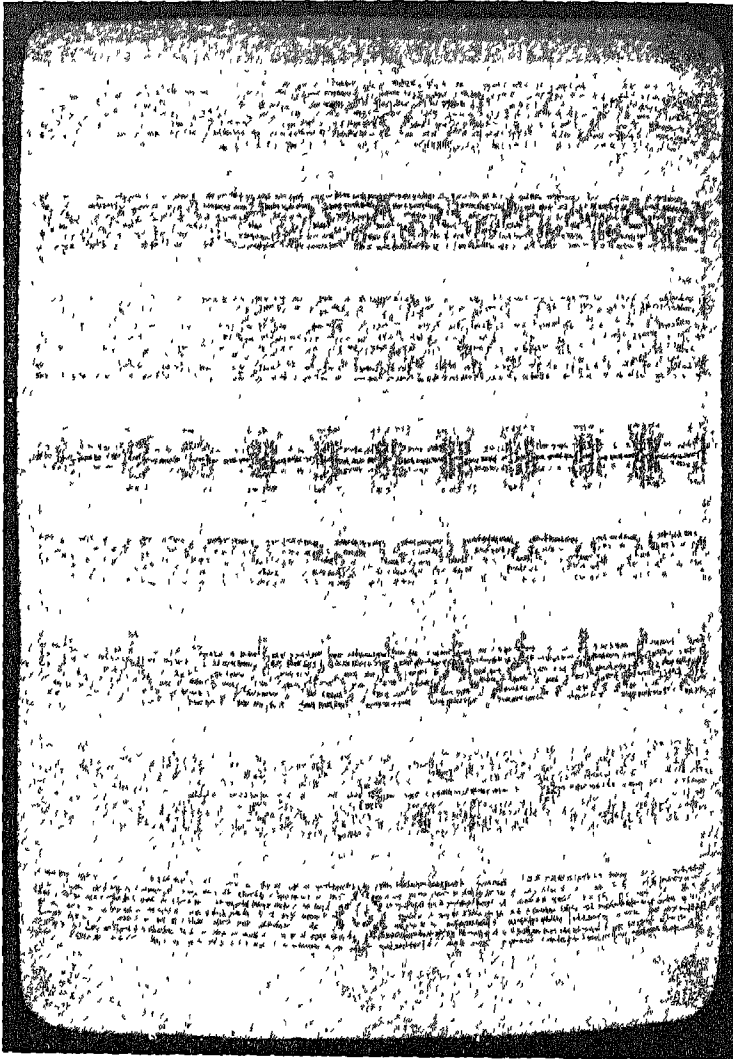
Only the flannel for holding needles remains to be prepared. Two pieces of flannel 5 in. by 3¾ in., and 5 in by 3 in. respectively, are needed. The edges of the flannel need blanket stitching; the stitches should not be too far apart. Blanket stitch should be practised on the sampler, the folded edge of one of the tacked-up hems being used for the purpose, or one of these may be let down to give a raw edge Teachers may find it useful to bear in mind that as blanket stitch is used from time to time the spaces between stitches may be gradually decreased until they lie close together; at that stage it will remain only to add padding and the child will have learnt scalloping. When the leaves of the needle book are ready, chain stitch must be practised on the sampler in preparation for sewing in the flannel. Chain stitch has been chosen for this purpose instead of the more usual

feather stitch, or herringbone stitch, both because it is simpler and will be of use in decorative work to come later Place the flannels one inside the other in the middle of the pochette next to the pocket. Find the middle of the leaves by measurement, pin, tack and sew the flannels into place using chain stitch. The pochette is now complete

Time: If practising on samplers is allowed as an occupation for odd moments, the sampler should be accomplished in from seven to eight periods.

II. A TRAY CLOTH IN HUCKABACK STITCH

THE method of decoration used in this lesson does not appear to be very old It probably dates from soon after the first appearance of huckaback, which is a product of the power loom

The Victorian Age was the age of "fancy work", work to pick up in idle moments and to put down for a gossip Huckaback work was very popular toward the end of the nineteenth century The whole surface of the material was covered with a pattern with no regard for suitability, neither the function of the material was considered, nor whether the heavy decoration was in keeping with its use. Huckaback is primarily a material to be made into towels. The work is executed by taking a coloured thread under the raised threads which occur at regular intervals in the material The idea was probably an outcome of the work in darning mentioned in Chapter I. Darned-work samplers were made in the Victorian era, so it is reasonable to suppose that there lies the germ of the idea. The product of the power loom was still a novelty in those days, and in accordance with the Victorian love of exotic novelty and incongruity, the idea of huckaback work ran mad Cushions, ties and waistcoats were made in huckaback and smothered with pattern However, huckaback work in moderation, used as borders to towels, children's feeders and

TRAY CLOTH IN HUCKABACK STITCH (FIG I)

HUCKABACK STITCH SAMPLER (FIG 2)

simple tray cloths, is a pleasing form of decoration, so long as the worker withstands the temptation to overdo the amount of decoration because of the simplicity of its execution. A towel decorated all over would be most unpleasant to use, while a feeder similarly treated would not wear well because of the hard rubbing it would need in the wash tub. To put it briefly, decoration should not in any way impair the usefulness of the article on which it is placed.

A blunt rug needle is used for huckaback work, and thread such as No. 16 D.M.C. *coton à broder*, in pure colours. Thicker thread than this was used in Victorian times; the finer thread gives a more graceful and less ponderous result, more of the background material is seen,—and the background is part of the design.

Picking up every raised thread on the material (provided one is not working merely in straight lines as shown in border 8 of

Fig. 2), almost inevitably makes diamond-shaped patterns of varying sizes; the patterns are controlled absolutely by the weave of the material. A glance at the sampler in Fig. 2 will show this; borders 1 and 2 are half diamonds,—triangles in fact. Border 3 shows a small diamond. Borders 4, 5 and 6 are parts of a diamond worked on different scales. Border 7, if composed differently, would form minute diamonds. Border 8 alone is free from the diamond formation, except in its central device which can be any shape or size that the worker desires. These borders can be executed in one or two colours, care being taken at this stage to use pure colours and not shades

The tool pochette will now require the addition of blunt rug needles; these must not be too large or they are liable continually to become unthreaded. The following class-room tools and materials will be required:

White huckaback, 24 in. wide.
D.M C. *coton à broder* in clear, pure colours.
Large cutting-out scissors
White sewing cotton, No 40.
Tacking cotton, No. 50.

The material used for the tray cloth measures 24 in by 13 in, that is, a strip 13 in. wide cut across the whole width of the material The selvedge is to be used in this case. The raised thread in the material occurs only one way in the stuff, so it is necessary when cutting out to make sure that the threads are in the right position for the decoration, since they form part of its construction

The tray cloth is decorated before any hems are turned up, in order that all starting and finishing threads can be covered. The first line of the decoration is begun 1$\frac{3}{4}$ in. up from the selvedge The starting thread is stitched loosely round the raw edge of the material at the point at which the row begins; finishing off is done in the same way. Joins are made by tying the new and old threads together on the wrong side, care being taken not to tie a granny knot, an alternative method is to run the thread backwards and forwards through a few of the raised threads on the wrong side Huckaback patterns cannot be practised on the existing sampler, but they are so easy to learn that after looking at examples of this work most children will be able to start on their tray cloth, failing this a few shared samplers of suitable material would suffice for the children who need this exercise

The decoration completed, the hems on the sides are turned up to be $\frac{1}{4}$ in. wide when finished, and are then pinned and tacked The decorated ends are turned up last. The selvedge on huckaback is usually good, and as the material is rather thick, no turnings will be needed. About $\frac{1}{4}$ in. of material is left below the pattern when turning up the hems. Turning the hem directly below the pattern gives a cramped effect to the whole design. The four hems are then slip-stitched with No. 40 white sewing cotton, and the four ends of the broad, decorated hems are top sewn

The work should be finished by using a hot iron to press it from the back, with a damp cloth laid over the work; remove the cloth and iron the material dry from the right side, avoiding the decoration, then iron it again all over from the back

Time · Three periods.

III. HANDKERCHIEF SACHET USING CHAIN STITCH

THE filling of areas with suitable stitches presents many difficulties to the beginner in embroidery. There are numerous stitches from which to choose, but because of the intricate, self-assertive nature of many stitches, these do not lend themselves well to the filling of areas where a uniform, even surface is required. These stitches are beautiful and interesting, and they require a high degree of technique for perfection of execution; but the simple ones are the more effective for filling areas

HANDKERCHIEF SACHET (FIG 1)

Chain stitch is one of the simple stitches to which reference has been made. It is a very old stitch, it has been in use for centuries and is to be found in work of many countries. Some pieces of ancient needlework are executed entirely in chain stitch, while in other pieces it is combined with different stitches Chain stitch is frequently used in the parts of the design where curves predominate, as this stitch is particularly flexible, and no distortion is needed to follow the most delicate curves. Chinese workers use this stitch, but it is not the one for which they are most famous; the stitch in which they are the great masters will be dealt with in a later lesson. Chain stitch was used a great deal in the famous English embroideries of the thirteenth and fourteenth centuries, and in domestic needlework of the Elizabethan period; after that epoch it re-appears in English work at various times down to the present day

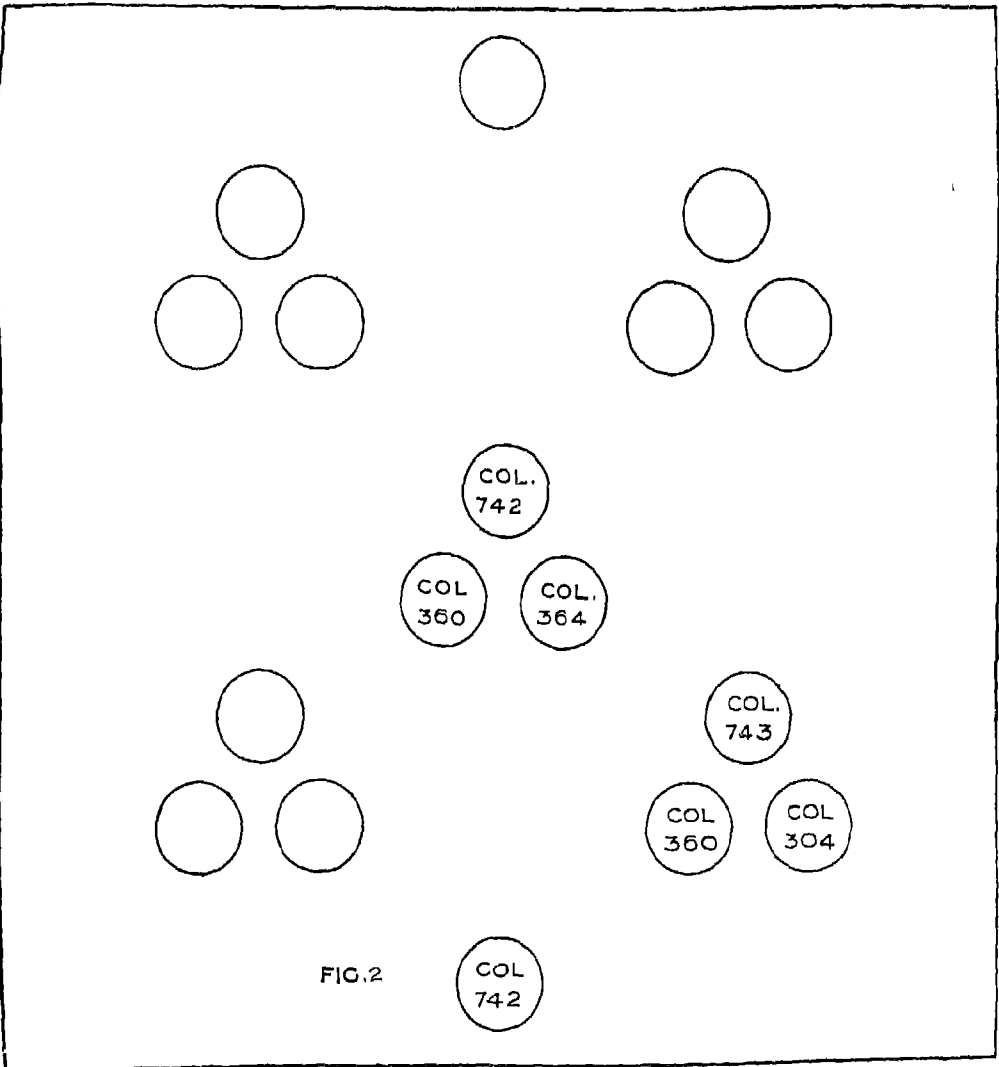
In this chapter is considered the need for making designs for embroidery. In Chapters I. and II the patterns evolve more or less under the needle itself, but now it is necessary to plan a complete design before starting the work. So far, patterns have been the main consideration; the design is a much more extensive affair. Colour, shape, size, the amount of decoration to be used, all come under the heading of design. Design includes the whole article from the first stroke of the pencil to the last stitch of the needle,—or one might say to the last pressure of the iron. The planning, thinking and executing must combine in a sensible, orderly performance if the article, when finished, is to fulfil the tenets of "good design".

The handkerchief sachet illustrated in Fig. 1 is decorated with a simple all-over pattern. In decoration of this nature care must be taken that the pattern does not encroach on the marginal lines,—in this case the line of chain stitching fixing the hem If the pattern runs too near this line the decoration will look overdone and cramped, and the design will become unbalanced. In this pattern the repetition of units composed of the same shapes gives

simple rhythm Fig. 3, a variation on the same theme, also gives rhythm, but not of quite such a simple type as that in Fig 1 Figs 4 and 5 suggest a different form of decoration A single large unit is used; this would be best placed centrally on the sachet. All these designs have been drawn on squared paper with geometrical instruments. Designs should be accurate, otherwise they will look shapeless and undecided after being executed with the needle

No addition to the tool pochette is needed, although it is an advantage to have private pencils

The following classroom tools and materials will be required:

Linen, casement cloth or some suitable material

Design for Handkerchief Sachet Ready for Tracing

D.M C. sewing cotton to match the material. D.M.C. *coton à broder*, No 16, to match the material.

Squared paper, with $\frac{1}{8}$ in ruling.

A HB pencil and a HHH pencil for tracing.

Compasses.

Rulers.

Used carbon paper for tracing

Tacking cotton, No. 40.

Large cutting-out scissors.

The handkerchief sachet shown in the illustration is made of buttercup linen and is embroidered in red, dark orange, orange and yellow D M C., Cols 304, 360, 742 and 743 (see Fig. 2) The sewing is done with D M C. sewing cotton, No. 40, Col. 742.

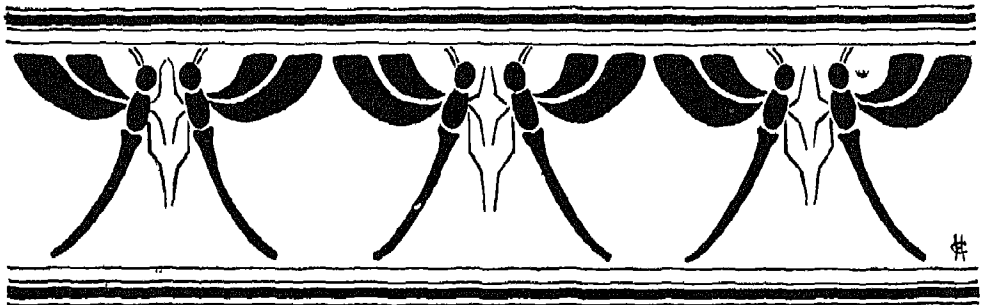
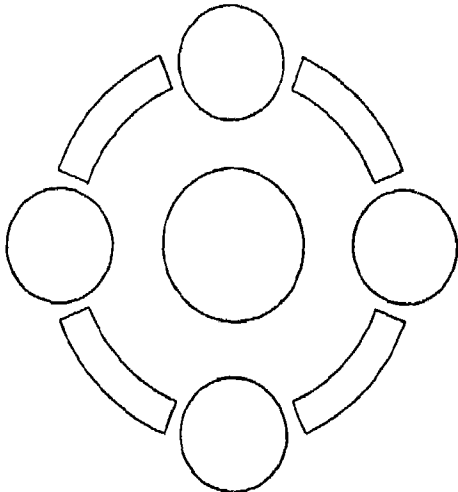
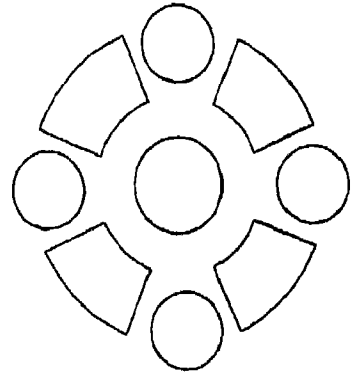
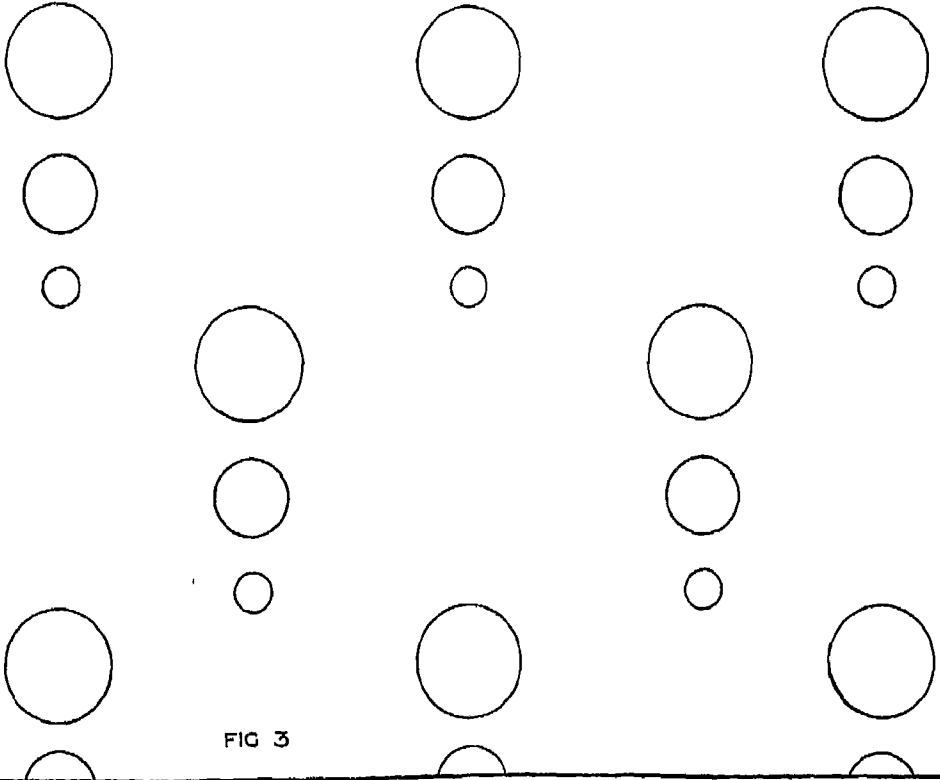
The piece of linen used in the sachet measures 29 in by 10 in ; this allows a hem $\frac{3}{4}$ in. wide when finished The cutting out and preparation of the hem are done in the same way as for the tool pochette in Chapter I. The hem is fixed by a single row of chain stitch in embroidery cotton to match the linen The chain stitching should be done on *top* of the tacking, and the tacking then snipped every two or three inches and drawn out carefully, so as not to injure the decorative stitching.

Filling a circle with chain stitch should next be practised on the sampler; in the meantime the sachet should be put away carefully to keep it clean Start chain stitching on the outside of the circle and work gradually in toward the centre, working in the same direction all the time; this rule applies whatever may be the shape or size of the area to be filled. Care must be taken not to get the stitches at all tight, or the work will be puckered.

The next step is to trace the design on the sachet. Fig. 2 shows the design ready for tracing. Pin the design on the sachet taking care that it is quite straight. Slip a piece of used carbon paper under the design, then with a hard pencil and compasses trace over the design with a moderate pressure. New carbon paper is apt to make smudges on the work wherever fingers rest while tracing. Used carbon paper is easy to obtain from owners of typewriters or from offices, as from the typewriting point of view it is waste paper.

When the sachet is embroidered and pressed the only remaining work is to make it up. Fold over 8$\frac{3}{4}$ in. at the plain end with the wrong side uppermost. Top sew the sides together, starting from the hem and working down to the fold Turn the work on to the right side and press it again

Time. Six periods, if the design is done in the drawing lesson and the practice on the sampler in odd moments.

DESIGNS BASED ON REPETITION OF UNITS

IV. HANDKERCHIEF DECORATED WITH STEM STITCH

STEM stitch, which is also called crewel or outline stitch, is another simple stitch that can be used for filling areas. It is not used so universally as chain stitch, and seldom has a whole piece of needlework been executed in this stitch alone. It does not seem to have been used so extensively

HANDKERCHIEF EMBROIDERY (Fig 1)

in wool embroidery as one of its names would lead us to expect. Stem stitch is found in Eastern embroideries; in combination with other stitches it appears a great deal in Elizabethan work, and is seen also in work of the Stuart Period

The article chosen for decoration in this lesson is a handkerchief, for which the compact filling given by the use of stem stitch is particularly suitable

Designs intended for embroidering on handkerchiefs should be worked out with rulers and compasses on squared paper. Care must be taken that the designs are not too heavy for the purpose for which they are required, and are yet suitable for executing in solid stem stitch. There is, however, no reason why areas should not be joined together by one or two rows of stitchery. By this method a lighter, more graceful effect will be gained, but the evolution of designs built entirely on lines must be avoided, as such designs are apt to become the meaningless meanderings that are typical of decadent styles

Fig. 2 shows the construction of the design used on the handkerchief illustrated in Fig. 1. In making this design more construction lines are needed than in any of the other designs suggested. Fig. 3 is also built up on circles, but the construction is obvious Figs. 4 and 5 are composed of a combination of squares, circles and subdivisions of squares These designs are intended only as suggestions with regard to methods of working If by way of starting children in making designs the teacher sees fit to illustrate these suggestions, the drawings should be removed from the blackboard before the children begin their own work, in order to ensure individual effort in creative work on the part of the children

No additions to the tool pochette are required for this work.

The following classroom tools and materials will be needed:

Fadeless cambric, lawn, or some similar material

Designs Suitable for Handkerchief Embroidery

D.M C. sewing cotton, No. 40, in colours to match the materials chosen

D.M C. *coton à broder*, No 16, in clear, pure colours

Tracing paper, or used carbon paper.

Squared paper with $\frac{1}{8}$ in ruling.

Rulers.

Compasses.

Pencils,—HB and HHH.

Large cutting-out scissors.

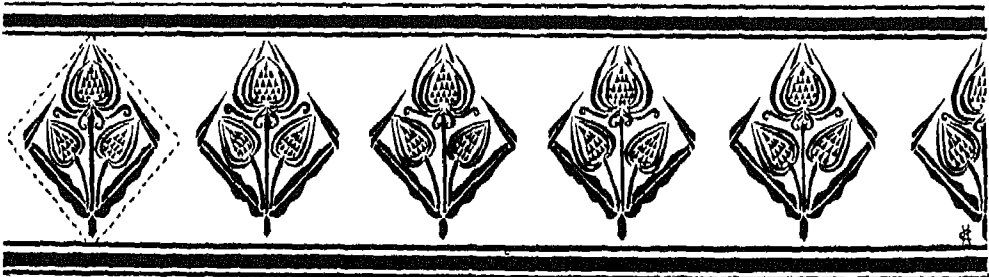
The handkerchief is made from a 12 in square of fadeless rose-coloured cambric, and is embroidered in D M C *coton à broder*, No. 16, in pink, Col. 3352; green, Col. 12; and blue, Col. 799; the corners are stitched with D M.C. sewing cotton, No. 40, Col. 3326, which matches the cambric.

A hem $\frac{1}{4}$ in wide when finished is turned down all round the handkerchief and tacked by exactly the same method as that used in Chapter I. A sewing needle, No. 5, can be used for all the decorative work, No. 6 for hemming and top-sewing the corners. A single row of tacking stitch is used to decorate and fasten down the hem. Stem stitch, or more than one row of decorative tacking, would be too heavy on the width of hem that is desirable for a handkerchief of this type. When the hems are finished the design should be traced on the handkerchief, care being taken that the design is centrally placed with regard to the corner, and that it is far enough from the hems to have a surrounding background sufficiently large to set off the design. Placing the design too near the hems will give a crowded heavy effect, while if it is too far from the hems the design will appear lost and disconnected.

Before starting on the handkerchief another simple design should be traced on the sampler and filled with stem stitch for practice. No 16 D.M C is a good thread with which to begin the practice of this embroidery stitch, but when the worker has had some experience, more beautiful results can be obtained if a slightly finer thread is used. For filling areas, the same rule applies in stem stitch as in chain stitch. When dealing with circular or irregular shapes the stitchery should start on the outside of the area to be filled, and follow the outline of the shape, working inwards to the centre row by row. Sometimes, for filling rectangular shapes, the stem stitching is done parallel with either the long or the short sides; this method of working gives a simple patterned effect

Fig. 6 shows the method of working stem stitch. In the second row, the piece of material picked up with the needle should fall just below that picked up in the preceding row, the same remark applies to all succeeding rows. Working in this way secures an even covering of the background material.

The outside portions of the design on the handkerchief were embroidered first and the square in the centre last; in this case the method of working the square was from the outside edge inwards to the centre: if preferred it may be worked on the method of parallel lines of stitchery

Time. Three periods of 40 minutes each if the design is made in the drawing lesson and if practice on the sampler is permitted in odd minutes.

V. WOOL EMBROIDERY USING FREE DESIGN

WOOL embroidery appears to be a typically English form of decoration. Since very early times England has been famous for her wool The story of the woollen industry from the twelfth to the nineteenth century gives an intimate picture of a great deal of the social life in England. In the early days wool was exported to Flanders, whence a good deal of it returned in the form of cloth After some time English people learned to spin and weave the wool which grew on the sheep of their own hillsides. It is difficult to imagine that Englishwomen of those days failed to decorate some material of their own weaving, when they had made it up into dresses which they prized and wore for a very long time. We know from wills made as far back as the tenth century that dresses and hangings were handed down from one generation to another We also know that people of those days knew how to dye materials by using the juices of plants As early as the tenth century a law was made regulating the weighing and pricing of wool. Similarly, throughout English history, we find laws relating to wool, her staple product The measure we know as a yard was instituted originally for measuring woollen cloth. Many words and phrases in the English language are the language of the woollen trade; for example, *spinster*, "to spin a yarn", and "to tell the tale" originally meant *to count the sheep*

HAT BAND SHOWING FREE DESIGN (FIG I)

Chaucer was for some time "Controller of the wool customs." Perhaps it was his knowledge of the trade in wool and cloth that made him say of the Wife of Bath in the *Canterbury Tales*—

"Of clooth-making she hadde swiche an
haunt,
She passed hem of Ypres and of Gaunt"

Wool embroidery lends itself very well to what is called free design. Many people find this method much easier than making a design on paper and visualising the finished effect This chapter has been planned as a change from the more orderly thinking that has been necessary in the preceding ones. Colour, design, composition stitchery and suitability play their parts as in all the other lessons, but their presence is not so apparent. At the same time, however, thinking must be quicker and more immediate, as problems present themselves continuously, and to the very end they call for instant solution

at the point of the needle. In the preceding lessons, the design had already been settled before its execution on the material began. Most problems were therefore anticipated, or should have been, before starting on the article itself, except that of stitchery alone in which problems persist to the very last stitch.

The stitches used on the hat band illustrated in Fig 1 are two that were used in the first lesson—blanket stitch and decorative tacking stitch In this lesson they are used in new arrangements on different materials

The decoration should follow some definite scheme, colours should be chosen before starting. The flowers should be composed into a block or blocks, powdered or else placed in some geometrical formation gained by eye-measurement Fig. 2 shows the treatment that could be used where a light border is desired, Fig 3 suggests a method of covering an entire surface in a free, all-over pattern; Fig. 4 might be used where a design is needed suggesting a heavy weighting border such as on the hem of a hanging. This border might be enlarged by increasing the size of the flowers and adding more

The addition of pointed needles, such as are used in Indian coiled basketry, will be required for the tool pochette. The following classroom tools and materials will be needed

Woollen materials, such as "wool-cloth", flannel or some similar material of open weave

Tapestry wools in clear strong colours.

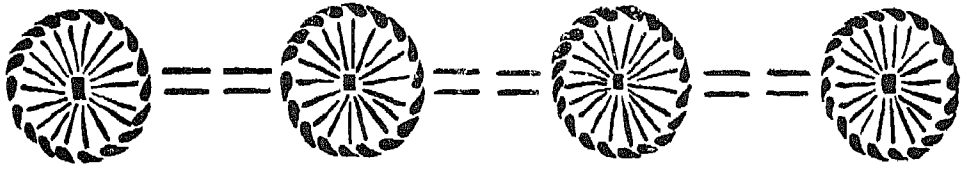
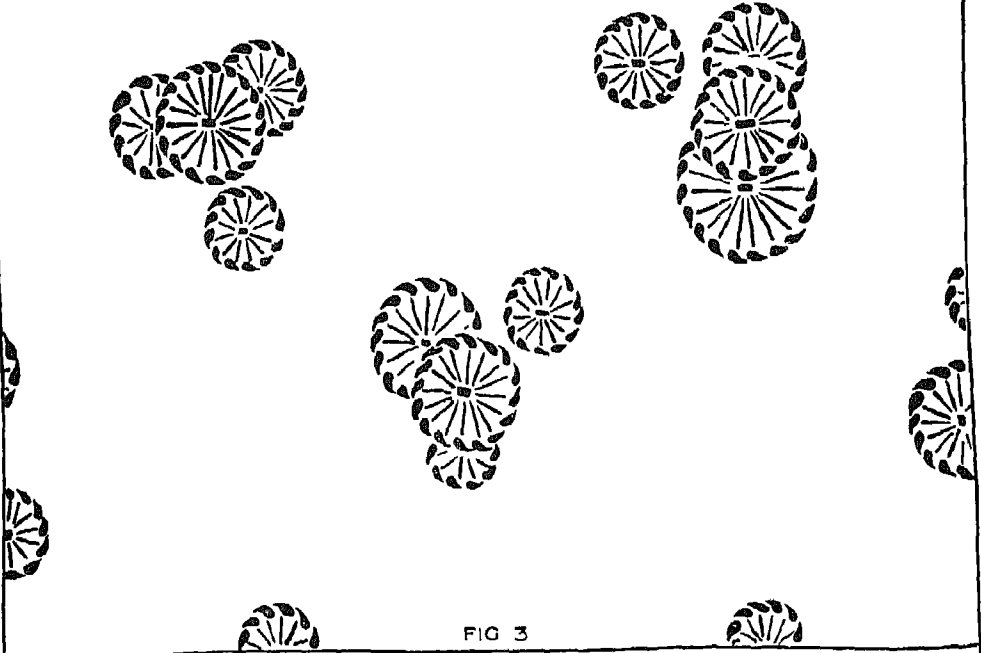
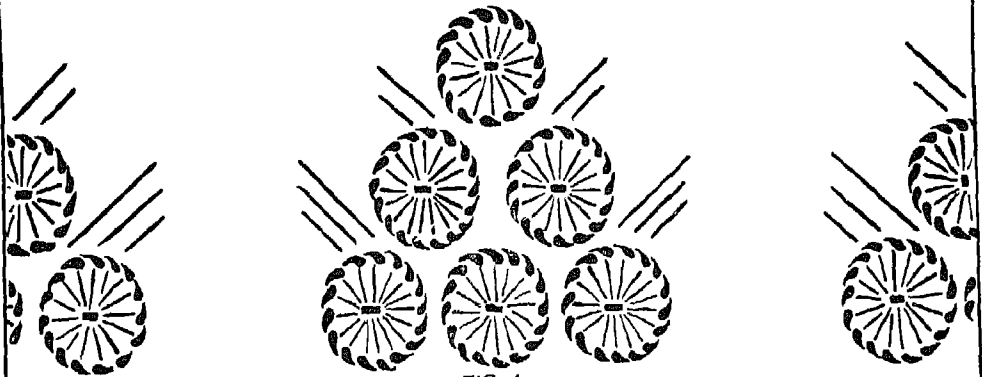
Large cutting-out scissors

Materials of loose open weave are best for this type of embroidery. "Wool-cloth" and flannel, which can be bought in very attractive colours, are easy to work on. If the hat band is needed for a summer hat, linens of open weave and soft coloured canvas can be used The hat band illustrated in Fig 1 is made from a strip of brown, light-weight, hand woven tweed, 31 in long and 2¾ in. wide The length and width of the hat band would, of course, vary with the needs and taste of the owner The four edges are blanket stitched with stitches placed about ⅛ in. apart over the raw edge. To turn in any material will make the edge bulky, and it is unnecessary if the blanket stitching is done properly. Care should be taken that the blanket stitching is not done tightly, or the material will fray away and give a hard, ridged edge. Straight blanket stitch need not be practised on the sampler, as it has already been used in Chapter I. The blanket stitching is done with wool a little lighter than the colour of the material; stitching with another colour altogether is apt to detract from the decoration and, except under special circumstances, give a home-made effect to the work.

Needles should be pointed; the smaller sizes of pointed needles for Indian coiled basketry are excellent for the purpose; they make a hole in the material sufficiently large for the wool to pull through easily without dragging either the material or the wool.

Blanket stitching in circles to form flowers calls for some sampler practice, as working all the stitches into the centre and making a circle by eye at the same time is a skilled performance. The centres of the flowers are made by two decorative tacking stitches placed close together, the leaves are composed of one or more decorative tacking stitches, according to what is required to balance the design

Children enjoy decorating plain woollen jumpers, woollen dresses, or felt hats with this form of embroidery Such work teaches children, while they are young, what can be done if good, plain, machine-made articles are bought, and the right amount of simple decoration is added at home

Time Four periods.

EXAMPLES OF FREE DESIGN FOR WOOL EMBROIDERY

VI. POCHETTE EXECUTED IN TENT STITCH

HITHERTO we have been dealing with decorative stitches that cover only certain portions of the material which forms the background. This chapter introduces another form of decoration in which the material is entirely covered with stitchery The stitch used is one of those employed on canvas; it is known as tent stitch It is also known by the French name of *petit point* Tent stitch has been known for a long time, and has been used fairly universally, but its English name has not the romantic origin which it suggests The stitch is not associated with tent-making

POCHETTE EXECUTED IN TENT STITCH (FIG 1)

of any kind, its real context is tapestry Tent stitch takes its name from the tenter, the frame on which material was stretched to dry. It was originally used to imitate woven tapestries which were the work of the loom

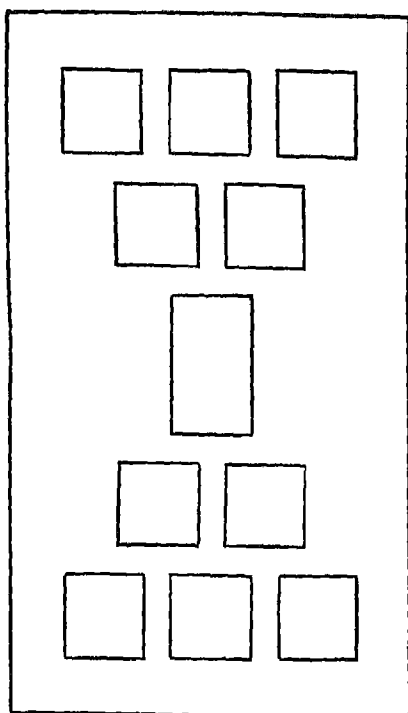
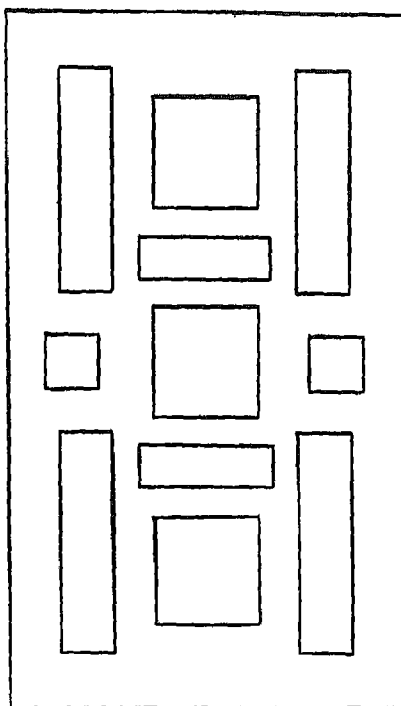
The working of tent stitch is a good introduction to cross stitch, of which it forms the first part. It can be worked rapidly, and it gives a beautiful smooth surface; it is probable that for this reason it was so widely used for needlework pictures in former days. Through the centuries, hangings, chair seats and even carpets have been worked in this stitch, either alone, or in combination with other canvas stitches For the beginner, however, it is wiser to learn one stitch at a time, and to execute examples in that stitch alone

Canvas varies as to the number of holes to the inch, and as the stitch must completely cover the background, the wool used must be of the right thickness to hide all the canvas, at the same time it should be of a thickness that will pass easily through the holes of the canvas without dragging.

Blunt rug needles will be required as an addition to the tool pochette.

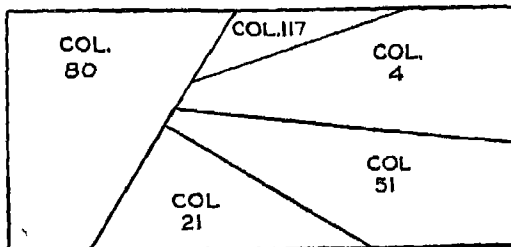
The following classroom tools and materials will be needed:

Penelope canvas.
Tapestry wools in clear, rich colours.
Light weight material suitable for lining the pochette.
Dress fasteners.
Tacking cotton.
Very narrow Russian braid to match the wool used as the background colour
Sewing silk or D M.C sewing cotton to match the braid and the lining.
Large cutting-out scissors.
Used carbon paper.
Rulers.
Pencils,—HB and HHH

The design used on the pochette illustrated in Fig 4 is more difficult to work than that shown in Fig 2 or Fig 3 because of the sloping lines which form part of the design in Fig. 4 Designs similar to those suggested in Figs 2 and 3 will be much easier for children to start on. However, should designs of the type illustrated in Fig. 1 be preferred, there is no reason why

SIMPLE DESIGNS SUITABLE FOR EXECUTION IN TENT STITCH

children should not attempt the problem of stepping the stitches in such a way as to form the sloping lines. It will be best for the present if designs using circles are avoided, and only those using rectilinear forms are attempted Planning these designs in terms of the number of holes to the inch is a simple matter, and keeping the design true will present few, if any, difficulties.

The pochette illustrated in Fig. 1 is made from a piece of Penelope canvas, 9½ in. by 6 in ; it is worked with Pearsall's tapestry wools: blue, No. 21; green, No 80; orange, No. 117; scarlet, No 4, deep crimson, No. 51, and dull pink, No. 26. It is lined with tussore silk that is patterned with a geometrical design, using red, blue and green circles on a cream ground, and is finished off round the edge with a very narrow Russian braid that matches the wool used in the background.

The canvas is first whipped all round with double tacking cotton using large stitches; this is to prevent the canvas from fraying while it is being worked upon The method of working depends upon the type of design chosen. If it is the type of design shown in Fig. 1 the design is traced on to that part of the canvas which will form the flap of the pochette when made up. Great care

WORKING DRAWING OF DESIGN USED ON POCHETTE ILLUSTRATED IN FIG. 1

must be taken that the horizontal and perpendicular lines of the design lie exactly over corresponding threads in the canvas, or difficulties will arise in the embroidery. Fig. 4 shows the design for the pochette ready for tracing on to the canvas. If the design is similar to those shown in Figs. 2 and 3, the plan of the design will be used as a working drawing. The number of holes to an inch in the canvas is easily determined. Each section of the design can be marked in terms of the number of stitches to be worked in the various colours. The worker can then begin to build up the design on canvas with needle and wool, starting at one corner; ½ in. should be left bare all round for turning.

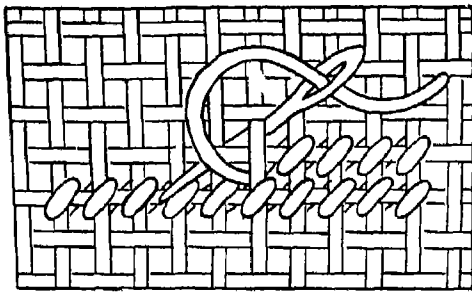



FIG 5

METHOD OF WORKING TENT STITCH

The method of working tent stitch is shown in Fig. 5 The thread is fastened in by making two or three darning stitches near the right hand side of the work; the stitch being worked from right to left. After making the last darning stitch the needle is brought up in the hole last but one of the lower of the two rows of holes being worked in The needle is inserted in the hole diagonally above, carried through to the back and brought up in the next hole on the left of the starting hole Continue working in this way until the left hand side of the work is reached, take the needle through to the back of the work, turn the work round so that the working end is on the right hand of the worker, bring the needle up in the second hole from the end of the next row of holes below and continue working as before. The method described for starting a new row by turning the work is followed in order to ensure that successive rows of stitches lie in the same direction. This smoothness of texture is an essential feature of tent stitch. Working ends are finished off by making running stitches through the back of the work. New ends of wool are started in similar fashion; care should be taken lest unevenness is caused by the running of finishing and starting ends over one another. The back of the work should be neat and smooth; the stitches on the back differ from those on the front only in being slightly longer.

When the decoration is finished the turnings are folded on to the back of the work and herringboned down very carefully with cotton to match the background wool. Care must be taken that the herringbone stitches do not either come through on to the right side or pull the tent stitch; if possible put them into the canvas. The turnings should be tacked down before herringboning, using large stitches which are taken right through the work. These stitches should be cut out carefully after the herringboning is finished If there is a selvedge on one side of the canvas it should be snipped ¼ in. deep at every inch to prevent dragging on that side. A little canvas can be cut off across the corners to prevent bulkiness

The lining is cut the same size as the canvas, 9½ in by 6 in It is turned in a little more than ½ in. all round, and is pinned, tacked and slip-stitched on to the pochette with silk or cotton to match the lining, using a No 5 needle. If the lining is of patterned material it should have a pattern that is in keeping with the design on the pochette. The design in this case being geometrical, so also should be the pattern on the lining, but not such as will give a jazz effect to the whole.

The pochette is now ready to be made up. Fold up the end for the pocket to a depth of

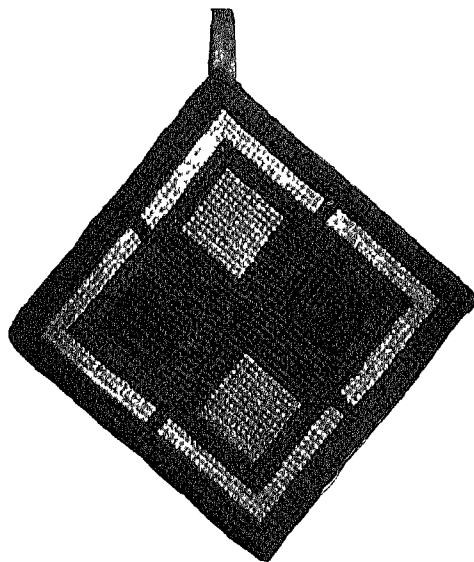
2¾ in. Mark places for clasps, sew on clasps and top sew the sides of the pocket as suggested in Chapter I., leaving the sides open ¼ in at the fold of the pocket for finishing off with braid. Poke one end of the braid in at the fold; finish top-sewing that side and then sew on the braid using a running stitch and an occasional back-stitch. When working round the flap of the pochette, put the braid just under the flap Now sew the braid down along the second side of the pocket to within 1 in. of the fold. Measure and cut off the braid, allowing ½ in. for finishing off. Poke the end of the braid into the piece of pocket left open, finish top-sewing this side and then finish sewing on the braid. Finishing with braid may prove difficult for some children, in which case it may be omitted. The braid is used to cover a thin line of canvas which remains after the bare canvas margin has been turned in.

Beginners sometimes pull their work off the straight while working This can be rectified by placing the finished work face downwards on a sheet of very wet blotting paper resting on a drawing board. The work can then be gently pulled into shape, pinned securely with drawing pins and left until dry Glass-headed or coloured-headed drawing pins are best for this purpose, as they have long slender pins and do not rust.

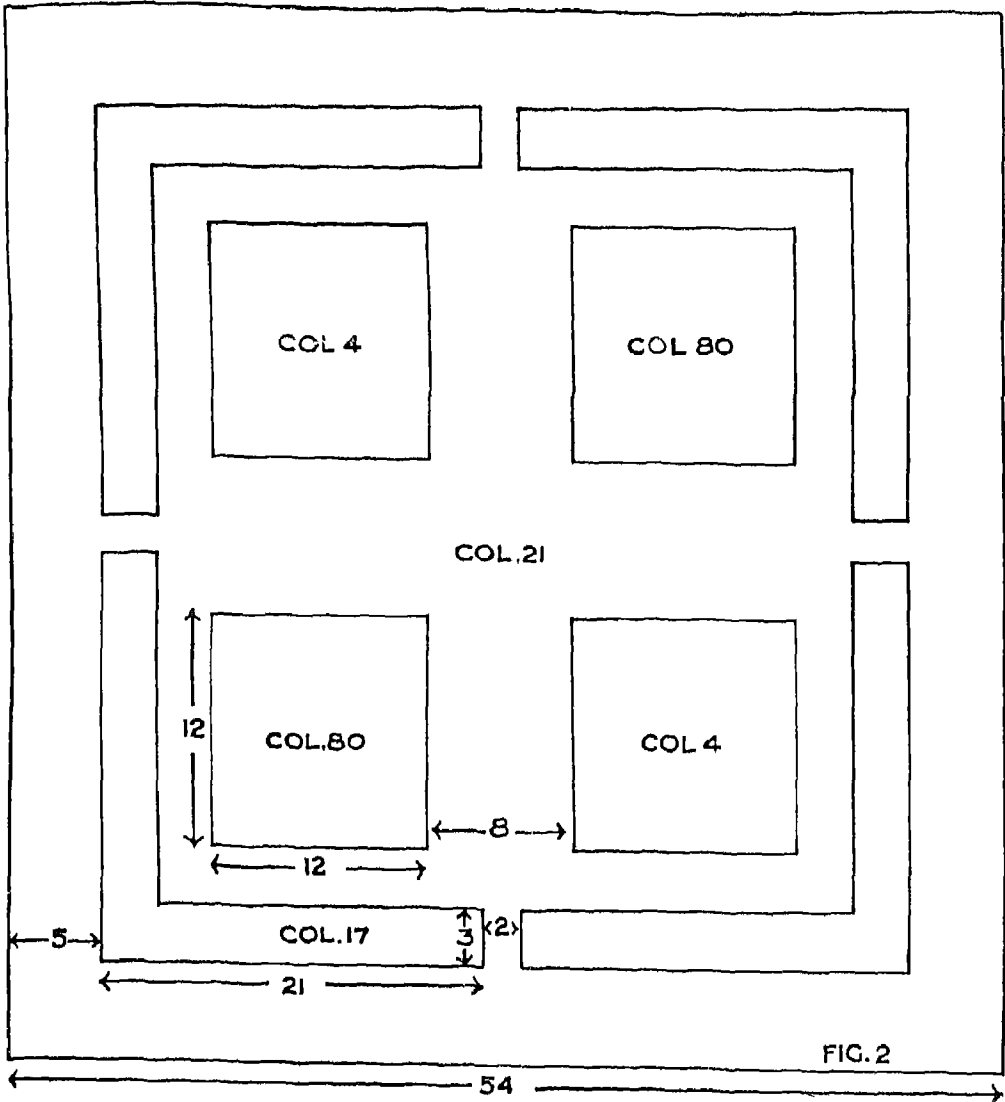
Tent stitch cannot be practised on the existing sampler, but practice is not likely to be necessary Tent stitch is excellent for the development of working rhythm, and permits of progress toward real working speed.

Time · Three to four periods, if the designs are made in the drawing lesson.

VII. AN IRONHOLDER EXECUTED IN CROSS STITCH

ANOTHER canvas stitch is used in this chapter. Cross stitch, or *gros point*, as it is sometimes called, is a much better known stitch than tent stitch which was used in the previous chapter. Most people, at some time or other, have worked cross stitch, while tent stitch is used by comparatively few. As was stated in the last chapter, cross stitch is tent stitch carried a step further. Cross stitch has been popular with English embroideresses for several centuries, especially during the seventeenth century. Cross stitch was used for the same purposes as tent stitch; sometimes the two stitches were used in combination. Chair seats, for instance, frequently show these two stitches in combination, the more delicate parts being executed in tent stitch, while the places where hard wear occurred were done in cross stitch.

IRONHOLDER EXECUTED IN CROSS STITCH (FIG. 1)

Designs suitable for this chapter will be similar to those used for the pochette in the chapter on tent stitch, with the difference that in the chapter on tent stitch a rectangular shape had to be filled, whereas in this chapter a square is the most suitable shape from the point of view of usefulness. Designs using circular forms are still better avoided for the present, and there is, after all, infinite variety in the choice of the proportions of rectangular forms. No designs are suggested in this lesson other than the one on the ironholder, as the type of design used in the two chapters on canvas stitches is the same. The experience gained in making designs to fill a rectangle, in the previous chapter, will prove to be ample preparation for dealing with the simpler problem of filling a square.

In the chapter on tent stitch it was sug-

WORKING DRAWING OF DESIGN USED FOR HOLDER

gested that a design drawn on squared paper, might be used as a working drawing Fig. 2 shows the design used on the ironholder prepared for use in the manner suggested. A usual size in canvas is 10 holes to the inch. Fortunately, paper ruled in squares 10 to the inch is also common. If such paper be used and each hole be reckoned as a stitch, drawing and work will correspond in every particular.

The canvas used for the ironholder illustrated worked out at just over 8 holes to the inch; hence the design was worked out on paper ruled in eighths in preference to that ruled in tenths since closer correspondence in size was gained thereby. Each hole represents a stitch, but, since every hole is somewhat larger than its corresponding stitch, the drawing is larger than the actual ironholder. Once the working drawing is ready, the making of the ironholder may begin.

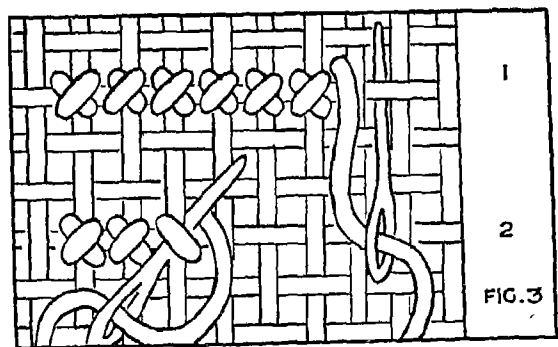
No additions to the tool pochette are required.

The following classroom tools and materials are needed:

Penelope canvas
Tapestry wools
Woollen material for lining and padding the ironholder
D.M.C. sewing cotton to match the lining for the holder.
Tacking cotton
Blunt rug needles.
Large cutting-out scissors.
Squared paper.
Pencils,—H B
Rulers.

The ironholder illustrated in Fig. 1 is made from a piece of Penelope canvas 7 in square, and is worked in Pearsall's tapestry wools, blue, No. 21; scarlet, No. 4; orange, No. 17, and green, No 80. It is lined and padded with fawn flannel.

The edges of the canvas are whipped to prevent fraying as was suggested in the last chapter. Cross stitch is illustrated in Fig. 3. One important rule must be borne in mind when working cross stitch; the top stitch must always lie across the under stitch in the same direction, or an uneven surface will be the result both as regards texture and colour. The method of finishing and starting threads is the same as was described for tent stitch.

When the cross stitching is finished, the ironholder should be pressed from the back; it is then ready for padding. The padding and final lining must be of woollen material, as wool is less inflammable than cotton; flannelette is definitely dangerous because of its extreme inflammability The material for padding is cut $\frac{1}{8}$ in smaller all round than the decorated surface, that is $5\frac{3}{4}$ in square. The number of such squares that will be needed depends on the thickness of the material used. The padding is placed on the back of the decorated portion and tacked on with large tacking stitches that go through on to the right side of the holder. A little canvas is cut off across the corners, the turning on the edges of the ironholder is turned down on to the padding and herringboned securely. The tackings should then be cut out carefully. The hanger is made from the same material as the lining and measures 4 in. by $1\frac{1}{4}$ in. before making up It is an advantage if one of the long

METHOD OF WORKING CROSS STITCH

sides of this piece is a selvedge, as in that case no turning will be required on this side. Fold the strip lengthwise into three and slip stitch the double edges together. Bend the completed strip to form a loop and sew it securely on to one corner of the iron-holder. The lining is cut 7 in. square, that is, ½ in. larger all round than the decorated portion of the ironholder. A little more than ¼ in. is turned down all round this square; it is then pinned, tacked and slip-stitched on to the holder with cotton to match the lining in colour, using a No. 5 sewing needle

Time: Six periods.

VIII. A CIRCULAR SCALLOPED MAT

SCALLOPING is a very popular method for decorating an edge It is very simple to execute, but like many other simple things, a high degree of skill is necessary if a pleasing and satisfactory article is to be achieved. Nothing looks worse than scalloping in which the stitches are too wide apart, especially if the background material and the thread used for scalloping are of different colours. Bad scalloping shows rough, untidy edges in the first wash, if they do not appear before that. Good scalloping, on the other hand, will wear well and look attractive almost indefinitely

SCALLOPED MAT (FIG 1)

Scalloping is generally used as a boundary line to cover a raw edge because it has only one flat side; sometimes, however, it is used in the design itself. The Elizabethan domestic needlework, mentioned in Chapter III., shows admirable use of buttonhole stitch in the design, in combination with chain stitch and other stitches. Buttonhole stitch used as part of the design will be dealt with in a later lesson, as practice is needed before it can be used satisfactorily for this purpose

No addition to the tool pochette is required.

The following classroom tools and materials will be needed:

Linen, casement cloth or some similar material.

D.M.C. *coton à broder*, No. 16, in pure, clear colours.

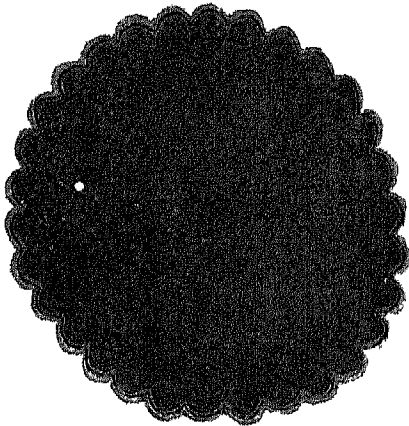
D M C. *coton à broder*, No. 16, of the same colour as the material on which it is to be used (for padding).

Compasses.

Used carbon paper.

Paper—thin brown is suitable

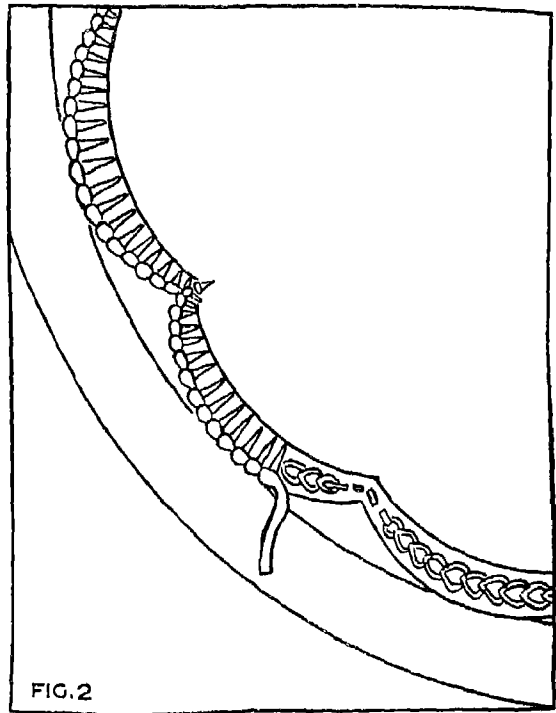
Large cutting-out scissors.

Pencils, HHH for tracing, HB for making scallops.

Pennies.
Halfpennies
Drawing pins

The mat illustrated in Fig 1 is 11 in in diameter and is cut out of a piece of butcher blue linen, 12½ in square. It is scalloped with copper-coloured D M C *coton à broder*, No 16, Col 923, and it is padded with blue D M.C *coton à broder*, No. 16, Col 923

A circular mat has been chosen as a starting exercise since fewer difficulties occur while marking the scallops when there are no corners in the work Draw a circle of 5½ in. radius with the compasses on a piece of paper 12½ in square. Cut a square of linen whose sides measure 12½ in., draw threads to cut along Pin the linen on to a drawing board or table with drawing pins, taking care not to pull the linen out of shape On the square of linen, place the paper on which the circle has been drawn, and pin it down carefully along one side Slip a piece of used carbon paper under the piece of paper already marked with a circle and trace the circle with a *hard* pencil; this circle represents the outer edge of the scallops.

The scallops are marked by using a halfpenny and a penny in the following way. Place the halfpenny inside the circle so that it touches the edge of the traced circle, mark round the halfpenny as far as will give a dip of about ⅜ in up from the circle: the next scallop will join at this point. Before marking the last half dozen scallops try whether or no they will fit exactly into the remaining space, if not, make a few scallops slightly larger or smaller than those made hitherto. When the outside edge of the scalloping has been traced all round the mat in this way, the inside of the scalloping is marked by using the penny. The penny, being a larger circle, cuts off the scallops more bluntly at their junctions with each other; they are, for this reason, less likely to tear in wear, as well as being easier to work Farthings and halfpennies can be used for marking smaller scallops Coins which have milled edges should never be used because the milled edge grates the lead of the pencil on to the work and gives a jagged edge to the scallop

These scallops are padded with chain stitch, which must increase in size with the width of the scallop At the joinings of the scallops a running stitch is used instead of chain stitch; to continue the chain stitch at this point would destroy the shape of the scallop and make it bulky. The join between two scallops is the weak point in scalloping, and it is best strengthened by a superimposed stitch which will be described shortly (see Fig. 2). Padding should be done with cotton matching the background material in colour, as it is then less likely

Scalloping Showing Constructional Lines, Padding and Stitches

to show if the scalloping stitches are made not quite close together.

Scalloping is illustrated in Fig. 2. This diagram shows the stitches placed wide apart in order to make the technique of working clear There are several important points to remember:

1. Buttonhole stitches must lie close together, but on the other hand, if they are too crowded they overlap and give a ridged effect, which may even fray away the material.

2 The buttonholing follows the curve of the scallop as if the stitches were radii of a circle, stitches kept straight cause bulkiness and too few stitches at the joining of two scallops

3. The top of each scallop is *one* stitch; the stitches before and after this stitch overlap one another, that is, they are worked into each other, to strengthen this spot, which would otherwise be weak.

4 Cut the scallops from the back, sloping the scissors in, towards the centre of the mat. Scissors must be small and should have firm, sharp blades

5. Cut the scallops before washing, as threads left from cutting will wash in with the slight shrinkage.

The line of back-stitching, which is ¼ in. in from the inside line of the scalloping is done before the scallops are cut out. A No. 5 sewing needle can be used all the time during this lesson

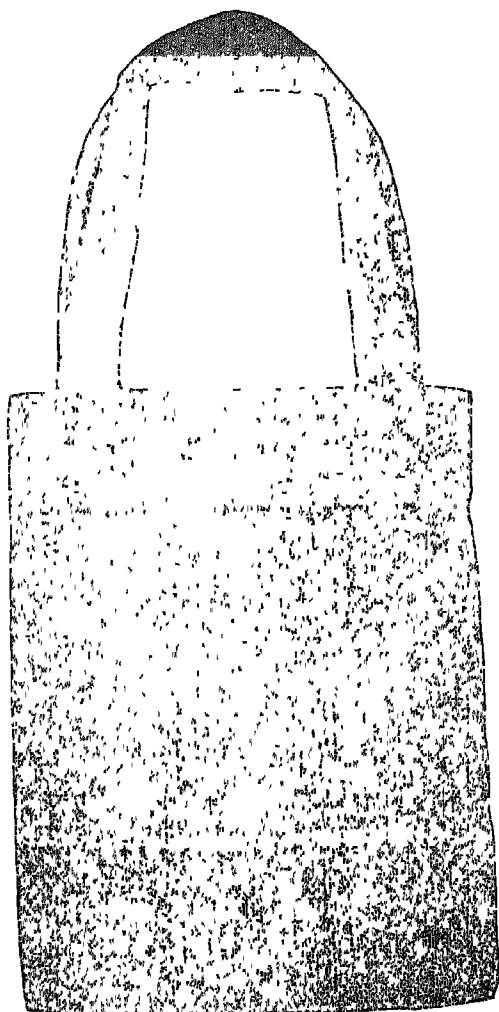
When the mat is finished it should be pressed well from the back, first on a damp cloth placed over it, and then on the material itself.

A few scallops should be done for practice on the sampler before starting on the mat.

Time: Four periods, if sampler practice can be done in odd moments.

IX. A DECORATED LUNCH BAG

A LUNCH bag made of hessian seems a commonplace article to decorate. There is, however, good reason why everyday things should be made beautiful, provided that the decoration in no way impairs their usefulness In some countries much more attention is paid to making commonplace articles beautiful than is usual in England. For example, the slogan of the present movement in Sweden has become *Vackrare Vardagavara*—"Beautiful Everyday Ware." A less conscious tendency to beautify commonplace products is shown in the manufacture of some Russian sacks. They are woven of flax, of a texture coarser than Russian crash, but instead of being plain, simple patterns have been woven on them giving an effect similar to that illustrated in Fig 1, which has been obtained by couching wool. These Russian sacks when opened out and fringed at the ends may be used as rugs.

The decoration on the lunch bag should be simple and strictly geometrical in character, but these restrictions should not give rise to work which is dull in appearance. Within the limits of simple geometrical design the Navaho Indians weave rugs which are celebrated for the beauty of their patterns. The appearance of couching in straight lines with wool on hessian is similar to weaving, and we may take a woven design as an inspiration for work in couching In the imitation of a woven design it is necessary to remember the limitations of weaving, or we shall lose the spirit of the originals,—the design must follow either the warp or the weft threads. The looms of the Navaho

DECORATED LUNCH BAG (FIG 1)

weavers are simple, and the threads are stout, therefore the outlines of their patterns are clearly marked by the angles produced by the meetings of the warp and weft threads. Imitation is not the aim of the lesson, but Navaho design is so excellent in its barbaric simplicity, that a child will learn a great deal by copying one such design, if reproductions of some of the best blankets can be procured The design should, if possible, be copied in the colours of the original

The following extract from the book *Indian Blankets and their Makers*, by George Wharton James, tells us the colours used by the Navaho weaver. "Red is the colour of the sunshine, hence its glorification in so many Navaho blankets. . . . He sees in the East the white light of morning, hence white is always symbolical of the East. The cloudless South is generally blue, hence blue always symbolises South. The sunset in the West is so often tinted yellow that that colour always symbolises West, while from the North come the dark, black clouds, hence black always symbolises North" These colours, red, white, blue, yellow and black, are the colours of the Navaho designs.

There are no further additions required for the tool pochette

The following classroom tools and materials will be needed

Coloured hessian.

D.M C *coton perle*, No. 8, of the same colour as the hessian.

Pearsall's tapestry wools in clear, rich colours.

Large cutting-out scissors.

Tacking cotton.

Pointed needles such as are used for Indian coiled basketry.

The bag illustrated in Fig. 1 is made from a piece of brown hessian 19 in. long and 13½ in. wide, and two small pieces 18 in. long and 3 in. wide The decoration is executed in tapestry wools in the following colours: jade, No. 75; red, No. 5, orange,

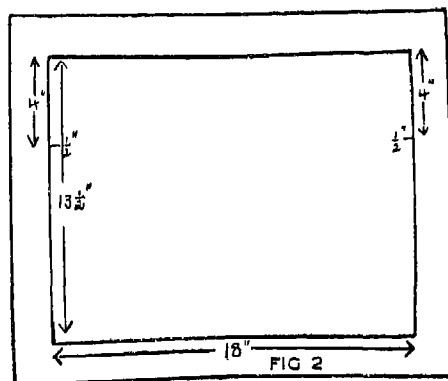
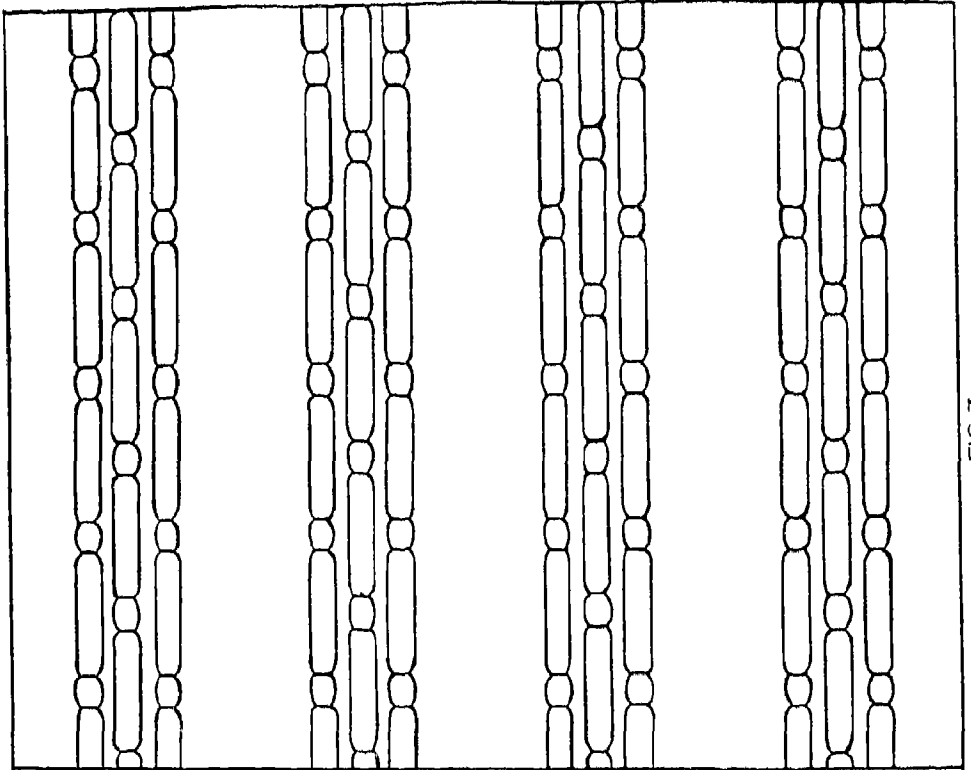
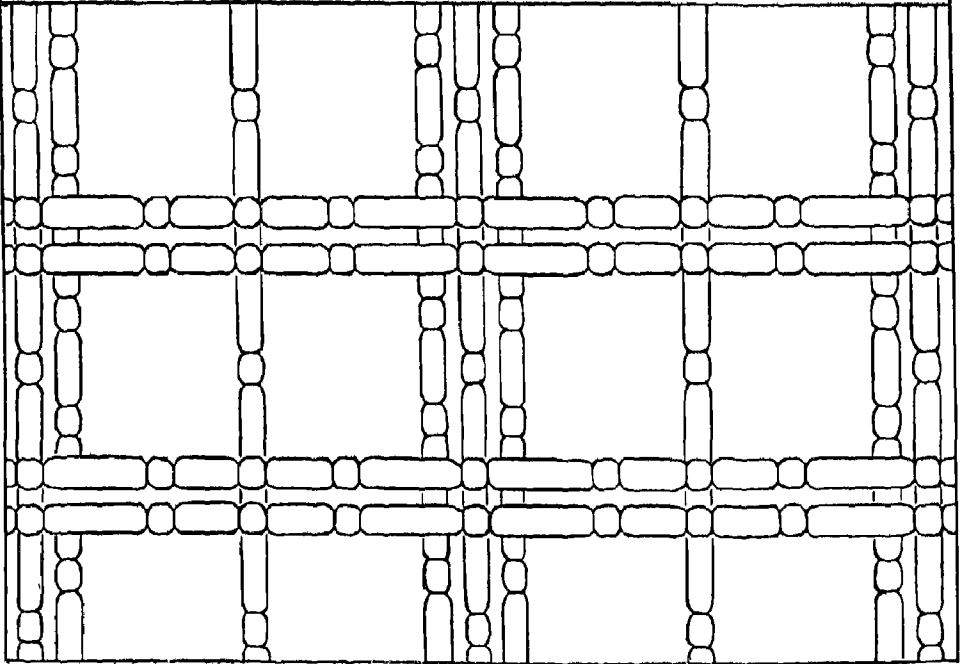



DIAGRAM ILLUSTRATING PLAN OF BAG

Designs Suitable for Couching

No 117; light brown, No. 90 The decoration is couched down with dark brown, No. 91 The herringbone stitch is worked with D M C. *coton perle*, No. 801, which matches the hessian.

A single hem is turned up all round the piece of hessian, and is tacked down. The hem must be reversed along the side which makes the turnover at the top of the finished bag This reversal is done in the following way:

Measure 4 in. from each end of the hem, and at these points make a snip inwards, ½ in. deep. Turn a single hem ½ in wide on to the opposite side of the material from that on which the hem was previously tacked. Tack down the reversed hem (Fig. 2)

All the hems should be herringboned down with *coton perle*, No. 8 in colour to match the hessian. The herringbone stitches should be large, or they will pull and fray the material instead of making the neat strong finish which is required.

The bag is now ready to be decorated. In a sense the pattern is a free design, but being of a geometrical character a certain amount of planning is required to keep the design true. The lines of decoration should be planned, and if necessary guiding lines of tacking cotton may be used Fig. 3 shows a simple variation of the design on the bag illustrated in Fig 1. Fig 4 shows a design which is considerably more difficult to execute. A study of the tying stitches in this pattern (Fig. 4) reveals that they occur in regular sequence and form a secondary pattern, together with the pattern formed by the long threads they give the effect of a plaid. The regularity of the tying stitches in Figs. 1 and 3 gives the appearance of weaving

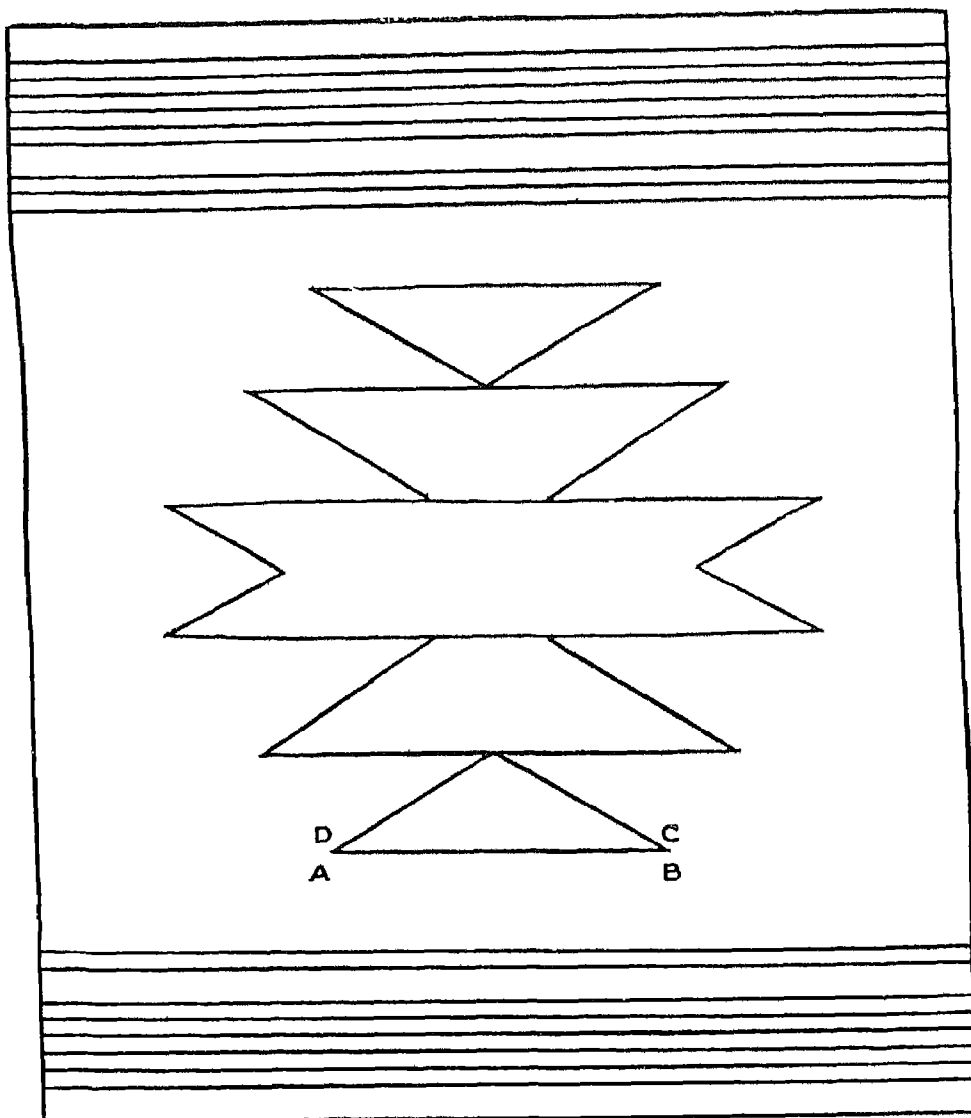
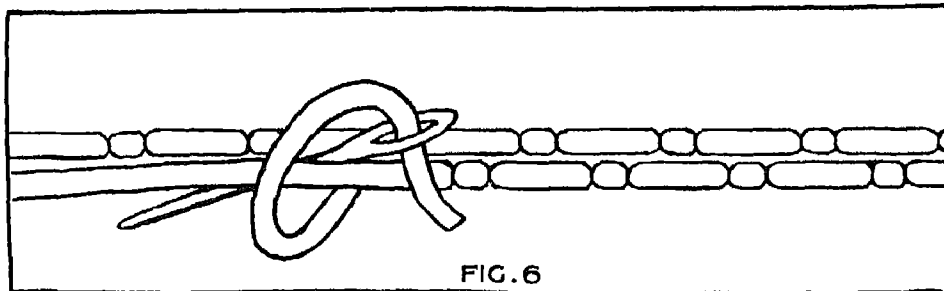
Fig. 5 illustrates another type of design suggested by a Navaho blanket. If we suppose that the warp threads run from the top to the bottom of the bag, the lines of couching will follow the supposed weft threads, that is, they will run across the width of the bag For example, in the central portion of the pattern shown in Fig. 5, the lines of couching will run from A to B, then from C to D, and so on, until this part of the pattern is complete.

The procedure of working the decoration on the bag illustrated in Fig. 1 was as follows.

The perpendicular lines of couching, 3 in apart, were worked first, finishing 3 in from the top edge so that their ends should be well covered by the turnover in the finished bag The work began with the centre line of couching (red), and it was then easy to work the jade threads on each side of it For the method of couching see Fig. 6. It is easy to follow a thread of the material for the first row of decoration, although, as it has already been suggested, tacking threads may be used for guidance.

The horizontal lines were then added, which being also 3 in apart, divided the background into three-inch squares These lines of decoration were finished off at the back of the herringboned hems on each side The turnover was decorated with parallel lines of couching,—checks, or any more complicated style of decoration, would give the appearance of overcrowding. Seven rows of couching were used in the following order:—light brown, jade, orange, red, orange, jade, light brown. The tying stitch throughout the bag was of a dark brown colour.

The handles of the bag were made up and sewn on before the sides of the bag were joined. The two smaller pieces of hessian, 18 in by 3 in, were used for making the handles. ½ in of material was turned down along each long side of the strips, the strips were then doubled down the middle, pinned, tacked and then slip stitched with D M C No 8 in colour to match the hessian. In order to avoid bulk the ends of the handles were not turned in The handles were pinned on 3½ in from the top edge of the bag, and herringboned to the material with large stitches along three edges of the handle and across it, in the form of a rectangle with sides 1½ in long.

The turnover was then folded over to a depth of 2 in and the sides pinned and

Design Suggested by Navaho Blanket (Fig 5)
Method of Couching (Fig 6)

tacked together Two strands of jade wool were attached just under the turnover. They were held down the side and whipped over with a strand of red wool, with stitches ½ in. apart The bottom and second side of the bag were finished off in the same way. When the whipping was completed, the turnover was sewn together with D M.C. No. 8. The whipping may be carried to the top of the bag, but a more attractive appearance is given if the turnover is left plain, except for the decoration round the hem.

Sampler practice in couching is advisable as it gives experience in maintaining a straight line

Time: Four periods.

X. NEEDLE WEAVING

NEEDLE Weaving has been done in the Near East, Egypt, Persia and Europe for a very long time. It appears in saddle cloths from Morocco and Turkestan, mummy cloths and garments from Egypt, covers from Persia and sashes from Turkey, as well as in work from Russia, Spain, England and Central Europe. The general technique is the same in all cases, Moorish and some English work show single whipped bars, and Moorish work also shows a carrying thread from one bar to another. In old work this form of decoration occurs most frequently on the borders of rectangular articles. The four sides usually have borders, but the embroiderers of early days seem to have left to chance the final working-out of the pattern, which was worked across one side, and down the other, and if the corners matched it was fortunate Working from both ends of one side toward the middle, and constructing a *motif* in keeping with the pattern to use up the remaining bunches of threads does not appear to have entered into the calculations of past embroiderers. Needle weaving can be done on many different textures of material, but the finer the material, and the finer the working thread, the more beautiful will be the result. Carrying threads and whipped single bars are best left till the worker is expert, otherwise they mar rather than add to the beauty of the work.

Sometimes other stitches are used in combination with needle weaving Bands of this form of decoration are divided or outlined with different stitches; or a little of the ground material, often only a few threads, may be left between the bands of needle weaving An infinite variety of patterns can be evolved in needle weaving. Simple ones should be chosen to start with, as well as the easiest and most efficient method of weaving in the threads There is no hard and fast rule for the weaving, and the mathematics of it will vary with the worker and with the type of pattern selected

There are no additions to the tool pochette.

Classroom tools and materials:

Coloured hessian

D M.C *coton perle*, No. 5, in pure, clear colours

D M C. *coton perle*, No 8, the same colour as the hessian.

Tacking cotton.

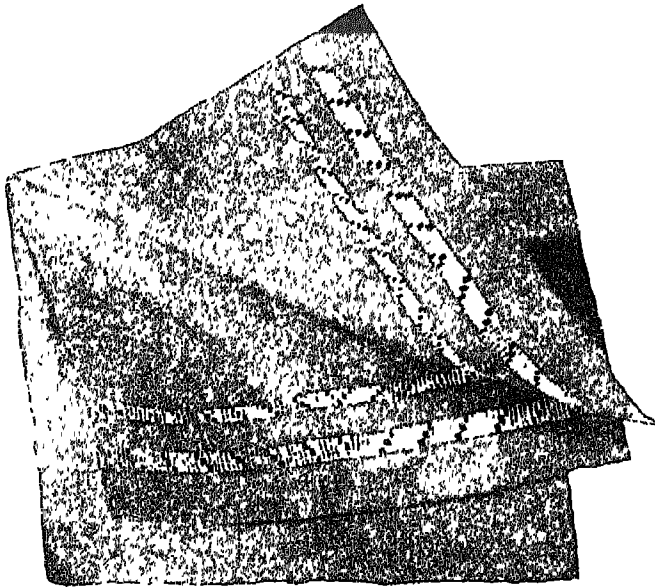
Large cutting-out scissors

Blunt rug needles.

The runner illustrated in Fig. 1 is made from a piece of brown hessian 54 in. by 18 in. This is a large size and may be altered according to individual tastes and needs The needle weaving is executed in D M.C *coton perle*, No. 5, Cols. gold 740; yellow

725; fawn 427, copper 920. The hemstitching, slip stitching and top-sewing are done with *coton perle*, No 8, Col. brown 801, to match the hessian A blunt rug needle is needed for the weaving, and an ordinary No. 5 sewing needle for the hemstitching and ordinary sewing stitches.

The first thread for the border is drawn 4 in. in from the end of the runner; three more threads are then drawn before tacking up the hem, as it is easier to hemstitch when only a few threads have been drawn. stitch, is the decoration In this case hemstitching is merely a means of dividing the threads into bundles and fastening down the hem, but the rule mentioned above still holds in other cases. In the present instance a different coloured thread from the ground material would detract from the needle weaving.

For hemstitching see Fig 2. Three threads are hemstitched together to form one bunch; at the sides, where the ½ in. hems occur, more than three threads have to be hem-

A RUNNER (FIG 1)

Tack up the hem, using ½ in for turning. Next tack up a hem (to be ½ in. wide when finished) down both long sides of the runner —unless one is a selvedge. Do not slip stitch these hems until all the threads for needle weaving have been drawn and the hemstitching and needle weaving completed, otherwise difficulties will arise in the weaving and when taking out the last few threads for the border

Hemstitching should be done with cotton to match the material The hole, not the stitched together on account of the extra number of threads at these points. To divide these over-laid threads into bundles of three threads only would bring the bunches too close together, and they would be difficult and bulky to weave. The ends of the hem can be top-sewn while hemstitching, the left end being done before the hemstitching begins, and the right end when the hemstitching is finished Hemstitching is required to be done on the hem side only of the drawn threads.

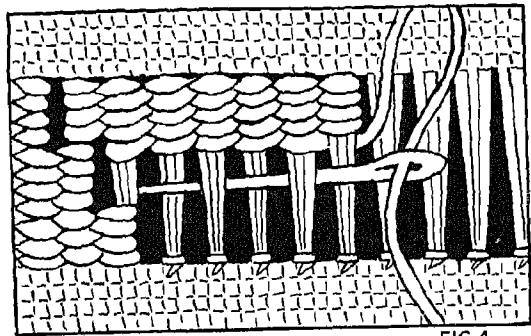
When the hemstitching is finished draw eight more threads, that is twelve in all for the wider border. The runner is now ready for needle weaving. In order to avoid joining more often than is necessary, the length of thread used is much longer than that employed in ordinary work A little experiment will help the worker to discover exactly the right length of thread needed to weave one block for the design illustrated in Fig. 1. The thread can then be cut by a specimen length, and all joins in the blocks of decoration are thereby eliminated. Fig. 3 shows the method used for starting a thread With the thumb of the left hand hold the thread up the second bunch of threads from the end of the block to be woven, put the needle round the first bunch of threads in the block, and start weaving as illustrated in Fig. 4. This figure illustrates weaving, but does not show the number of threads or loops required for each section of a block, as this would require a much larger illustration to make the point clear. The end of the thread must be kept in place with the thumb of the left hand until the weaving has moved beyond the first two bunches in the block. To fasten off a thread take it through to the wrong side and run it up and down two or three woven bunches of threads. The design is formed of three sections that move on one bunch at a time; each of these sections is composed of seven bunches of threads, and each has twelve strands of cotton woven in,—that is six loops at each end of a section.

FIG 2

FIG 3

FIG 4

HEMSTITCHING AND NEEDLE WEAVING

The narrow inside border has been added for the benefit of the rapid worker. It is 1 in. away from the wide border. The preparation is exactly the same as for the first border,—four threads are drawn before, and four threads after the hemstitching is done; that is, eight threads in all. The blocks are six bunches wide and have eight threads woven into each section, thus making four loops at each end. When both ends of the runner have been decorated, the narrow hem on the sides should be slip stitched, and the tackings removed.

The sampler is probably too fine for practice in needle weaving; shared samplers of hessian could be used by those who do not feel able to start on the runner itself.

Time Seven periods.